

NEWS 37 May 15 MEDLINE file segment of TOXCENTER reloaded
NEWS 38 May 15 Supporter information for ENCOMPAT and ENCOMPLIT updated
NEWS 39 May 16 CHEMREACT will be removed from STN
NEWS 40 May 19 Simultaneous left and right truncation added to WSCA
NEWS 41 May 19 RAPRA enhanced with new search field, simultaneous left and
right truncation

NEWS EXPRESS April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT
MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP),
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FILE COVERS 1907 - 20 May 2003 VOL 138 ISS 21

FILE LAST UPDATED: 19 May 2003 (20030519/ED)

This file contains CAS Registry Numbers for easy and accurate
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=> s METALLOPORPHYRINS+OLD,NT/CT(L)CAT/RL and OXIDATION CATALYSTS+NT/CT not py>1999
L1 344 METALLOPORPHYRINS+OLD,NT/CT(L)CAT/RL AND OXIDATION CATALYSTS+NT/
CT NOT PY>1999 (57 TERMS)

=> d ibib ab hit 1-344

L1 ANSWER 1 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:97577 HCAPLUS
DOCUMENT NUMBER: 132:250945
TITLE: Oxidation of trimethylphenol catalyzed by aqueous
soluble oxygen carriers
AUTHOR(S): Ning, Zhou; Xi, Zuwei; Cao, Guoying; Zhang, Xiufeng;
Hai, Xiaodan
CORPORATE SOURCE: Dalian Institute of Chemical Physics, Chinese Academy
of Sciences, Dalian, 116023, Peop. Rep. China
SOURCE: Oxidation Communications (1999), 22(4), 527-531
CODEN: OXCODW; ISSN: 0209-4541
PUBLISHER: Bulgarian-English Academic Publishing House,
PublishScieSet
DOCUMENT TYPE: Journal
LANGUAGE: English
AB O carriers such as metalloporphyrin, metallophthalocyanine and Co Schiff
base etc., were effective catalysts for oxidn. of phenols to quinones.
The influence of the aq. sol. O carriers on the oxidn. of trimethylphenol
was studied under various conditions. In homogeneous reaction system, DMF
was a good solvent in which high yield was achieved; with addn. of NaOH in
homogeneous system, the conversion increased and the selectivity
decreased; in H2O-oil biphasic system, condensation product was readily
produced; after the reaction being carried out in DMF + toluene
homogeneous system, the catalyst could be extd. with dil. Na2CO3 soln.
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
IT Condensation products
Oxidation catalysts
Solvent effect
(oxidn. of trimethylphenol catalyzed by aq. sol. oxygen carriers)
IT Metallophthalocyanines
Metalloporphyrins
RL: CAT (Catalyst use); USES (Uses)
(oxidn. of trimethylphenol catalyzed by aq. sol. oxygen carriers)

L1 ANSWER 2 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:7726 HCAPLUS
DOCUMENT NUMBER: 132:188860
TITLE: Characterization and catalytic activity of iron(III)
mono(4-N-methyl pyridyl)-tris(halophenyl) porphyrins
in homogeneous and heterogeneous systems
AUTHOR(S): Prado-Manso, C. M. C.; Vidoto, E. A.; Vinhado, F. S.;
Sacco, H. C.; Ciuffi, K. J.; Martins, P. R.; Ferreira,
A. G.; Lindsay-Smith, J. R.; Nascimento, O. R.;
Iamamoto, Y.
CORPORATE SOURCE: 3900, Av. Bandeirantes, FFCLRP, Departamento de
Quimica, Universidade de Sao Paulo, Ribeirao Preto,
CEP 14040-901, Brazil
SOURCE: Journal of Molecular Catalysis A: Chemical (1999),
150(1-2), 251-266
CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The synthesis, characterization and catalytic activity of the cationic Fe porphyrins $\text{Fe}[\text{M}(4\text{-N-MePy})\text{TDCPP}]\text{Cl}_2$ and $\text{Fe}[\text{M}(4\text{-N-MePy})\text{TFPP}]\text{Cl}_2$ in the epoxidn. of (Z)-cyclooctene by PhIO in homogeneous soln. and supported on silica gel (SG), imidazole Pr gel (IPG) or SG modified with 2-(4-sulfonatophenyl)ethyl groups (SiSO_3) were accomplished. When supported on IPG, both cationic FeP bind to the support via Fe-imidazole coordination. $\text{Fe}[\text{M}(4\text{-N-MePy})\text{TDCPP}]\text{IPG}$ contains a mixt. of low-spin bis-coordinated FeIIIP and high-spin monocoordinated FeIIIP species, whereas $\text{Fe}[\text{M}(4\text{-N-MePy})\text{TFPP}]\text{IPG}$ only contains high-spin monocoordinated FeIIIP. These FeIPG catalysts also contain FeIIP species, whose presence was confirmed by EPR spectroscopy using NO as a paramagnetic probe. Both cationic FePs coordinate to SG through Fe-O ligation and they are present as high-spin FeIIIP species. The cationic FePs supported on SiSO_3^- are also high-spin FeIIIP species and they bind to the support via electrostatic interaction between the 4-N-methylpyridyl groups and the SO_3^- groups present on the matrix. In homogeneous soln., both $\text{Fe}[\text{M}(4\text{-N-MePy})\text{TDCPP}]\text{Cl}_2$ and $\text{Fe}[\text{M}(4\text{-N-MePy})\text{TFPP}]\text{Cl}_2$ have similar catalytic activity to $\text{Fe}(\text{TDCPP})\text{Cl}$ and $\text{Fe}(\text{TFPP})\text{Cl}$, leading to cis-epoxycyclooctane yields of 92%. When supported on inorg. matrixes, both FePs lead to epoxide yields comparable to their homogeneous analogs and their anchoring enables catalyst recovery and re-use. Recycling of $\text{Fe}[\text{M}(4\text{-N-MePy})\text{TDCPP}]\text{SiSO}_3^-$ shows that this FeP maintains its activity in a 2nd reaction.

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(prepn., ESR and UV spectra and catalysts for epoxidn. of (Z)-cyclooctene by PhIO of unsupported and propylimidazole/sulfonatophenylethyl modified silica gel supported iron(III) porphyrins)

IT **Epoxidation catalysts**

(unsupported and propylimidazole/sulfonatophenylethyl modified silica gel supported iron(III) porphyrins as catalysts for epoxidn. of (Z)-cyclooctene by PhIO)

L1 ANSWER 3 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:7709 HCAPLUS

DOCUMENT NUMBER: 132:180240

TITLE: A mechanistic study on oxidation of benzylic alcohols with PPh_4HSO_5 catalyzed by manganese(III) porphyrins in homogeneous solution

AUTHOR(S): Campestrini, S.; Cagnina, A.

CORPORATE SOURCE: Centro CNR di Studio sui Meccanismi di Reazioni Organiche, Dipartimento di Chimica Organica, Universita di Padova, Padua, 35131, Italy

SOURCE: Journal of Molecular Catalysis A: Chemical (1999), 150(1-2), 77-86

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The oxidn. of variously ring-substituted 1-phenylethanols with Ph_4PHSO_5

catalyzed by Mn(TMP)Cl and Mn(TDCPP)Cl in the presence of 4-tert-butylpyridine was studied in 1,2-dichloroethane homogeneous soln. The process leads only to C-H bond cleavage products, namely acetophenones. The oxidn. rates are independent of the substrate concn. and, when Mn(TMP)Cl is the catalyst, even of the substrate nature. By increasing the concn. of 4-tert-butylpyridine, which acts as an axial ligand of the catalyst, a bell-shaped curve for the rate consts. trend is obsd. Hammett plots obtained by changing the substituents on the Ph ring of the benzylic alc. give different ρ values depending on the technique employed for rate consts. detn., i.e., individual or competitive expt. The observations reported above, together with a KIE of 2.5 in 1-d-1-phenylethanol oxidn. measured by competitive expt., are rationalized on the basis of a mechanistic scheme in which the oxo-manganese deriv. is formed in the rate detg. step of the catalytic process. Furthermore, it is suggested that alc. dehydrogenation proceeds through a hydride abstraction involving an alc.-oxo-porphyrinato complex.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(manganese porphyrin complexes; mechanistic study on oxidn. of benzylic alcs. with PPh4HSO5 catalyzed by manganese(III) porphyrins in homogeneous soln.)

IT **Oxidation**

Oxidation catalysts

Oxidation kinetics

Reaction constant

Substituent effects

(mechanistic study on oxidn. of benzylic alcs. with PPh4HSO5 catalyzed by manganese(III) porphyrins in homogeneous soln.)

L1 ANSWER 4 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:781354 HCAPLUS

DOCUMENT NUMBER: 132:137149

TITLE: Photocatalytic oxidation of aromatic aldehydes with Co(II)tetra-(benzoyloxyphenyl)porphyrin and molecular oxygen

AUTHOR(S): Chen, H.; An, T.; Fang, Y.; Zhu, K.

CORPORATE SOURCE: Department of chemistry, Northwest Normal University, Lanzhou, Peop. Rep. China

SOURCE: Journal of Molecular Catalysis A: Chemical (1999), 147(1-2), 165-172

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Illuminated with 450 W high pressure mercury lamp (HPML), the oxidn. of arom. aldehydes was investigated with mol. oxygen in the presence of Co(II) [meso-tetra(benzoyloxy-phenyl) porphyrin] (CoTBCOPP). The oxygen uptake was measured during the reaction process. Under the mild condition (30.degree.C, 1 atm O2), the oxidn. reactions occurred without consumption of reducing agent. It was obsd. that CoTBCOPP could catalyze the oxidn. of arom. aldehydes by reversibly binding mol. oxygen. The effects of the concns. of catalyst and substrate in the oxidn. reaction system were studied, meanwhile the factor of solvents was discussed in detail. The induction period was greatly shortened by raising the temp. of oxidn. system or adding hydrogen peroxide. However, low dioxygen absorbed and

long induction period were obtained when imidazole was added as the fifth ligand.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(photocatalytic oxidn. of arom. aldehydes with Co(II)
meso-tetrakis(4-benzoyloxyphenyl)porphyrin and mol. oxygen)

IT **Oxidation catalysts**

(photooxidn.; photocatalytic oxidn. of arom. aldehydes with Co(II)
meso-tetrakis(4-benzoyloxyphenyl)porphyrin and mol. oxygen)

IT 7722-84-1, Hydrogen peroxide, uses **14172-90-8** 161528-66-1
161528-67-2 256662-99-4 256663-00-0

RL: **CAT (Catalyst use)**; USES (Uses)
(photocatalytic oxidn. of arom. aldehydes with Co(II)
meso-tetrakis(4-benzoyloxyphenyl)porphyrin and mol. oxygen)

L1 ANSWER 5 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:770768 HCAPLUS

DOCUMENT NUMBER: 132:129866

TITLE: Photocatalytic activation of oxygen by iron(III)
porphyrins

AUTHOR(S): Hennig, Horst; Lupp, Doritt

CORPORATE SOURCE: Institut fur Anorganische Chemie, Universitat Leipzig,
Leipzig, D-04103, Germany

SOURCE: Journal fuer Praktische Chemie (Weinheim, Germany)
(1999), 341(8), 757-767

CODEN: JPCHF4; ISSN: 1436-9966

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: German

AB Photochem. charge transfer excitation of tetraphenyl(porphyrinato)iron(III) complexes yields tetraphenyl(porphyrinato)iron(II) which is able to coordinate O₂ under formation of oxo-[tetraphenyl(porphyrinato)]iron(IV). Based on this photochem. reaction pathway photocatalytic oxygenation of .alpha.-pinene and other alkenes can be initiated. Fe(III) complexes of tetramesitylporphyrin, tetrakis(pentafluorophenyl)porphyrin, octa-.beta.-bromo-tetrakis(pentafluorophenyl)porphyrin, and octa-.beta.-chloro-tetrakis(pentafluorophenyl)porphyrin were investigated photochem. with the aim to improve the low photochem. efficiency of tetraphenyl(porphyrinato)iron(III). The influence of substituents on the porphyrin ligand on the photochem. behavior of the corresponding Fe(III) complexes is measured mainly by temp. dependent UV/Vis spectroscopy. Both, the yield of oxygenation products formed photocatalytically with .alpha.-pinene and the product distribution (allylic alcs. vs. epoxide) depend on the design of the porphyrin ligands coordinated with Fe(III).

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Oxidation catalysts**

Oxygenation

UV and visible spectra

(photocatalytic activation of O₂ by Fe(III) porphyrin complexes studied via .alpha.-pinene oxygenation by UV/Vis spectra)

IT 12582-61-5P **16456-81-8P** 32195-55-4P 36965-71-6P
54453-30-4P 77439-21-5P 81245-20-7P 131917-66-3P 134131-11-6P

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);

PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(complex prepn. and photocatalytic activation of O2 by Fe(III) porphyrin complexes studied via .alpha.-pinene oxygenation by UV/Vis spectra)

L1 ANSWER 6 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:770348 HCAPLUS

DOCUMENT NUMBER: 132:92953

TITLE: Electronic effects on the stereoselectivity of epoxidation reactions catalyzed by manganese porphyrins

AUTHOR(S): Baciocchi, Enrico; Boschi, Tristano; Cassioli, Luigi; Galli, Carlo; Jaquinod, Laurent; Lapi, Andrea; Paolesse, Roberto; Smith, Kevin M.; Tagliatesta, Pietro

CORPORATE SOURCE: Dipartimento Chimica, Univ. La Sapienza, Rome, I-00185, Italy

SOURCE: European Journal of Organic Chemistry (1999), (12), 3281-3286

CODEN: EJOCFK; ISSN: 1434-193X

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of Mn(III) porphyrins progressively halogenated in the .beta.-pyrrolic positions was employed to catalyze the epoxidn. of cis-stilbene by iodosylbenzene, and to study the role of the electronic effects on the stereoselectivity of this process. A gradual improvement in the stereoselectivity on increasing the no. of .beta.-halogen atoms was obsd. The role of steric effects upon the epoxidn. was also investigated by placing ortho-substituents in the meso-Ph rings, and it was found that steric effects are more important than electronic effects toward the stereoselectivity of this process. These results can be rationalized by proposing a competition between a non-stereoselective electrophilic pathway of addn. and a stereospecific pathway of O insertion, the former being disfavored by electron-withdrawing substituents. Alternatively, the formation of an open intermediate between the Mn(V) oxene and the substrate could be suggested, where the stereoselectivity ought to be detd. by the competition between closure of the epoxide ring and rotation around the C-C bond. In this case, the enhanced stereoselectivity given by our polyhalogenated porphyrins might be attributed to an acceleration of the epoxide ring closure caused by the electron-withdrawing effect of the halogen substituents.

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(manganese porphyrin complexes; steric and electronic substituent effects of porphyrin ligands on Mn porphyrin-catalyzed stereoselective epoxidn. of cis-stilbene)

IT Epoxidation

Epoxidation catalysts

(stereoselective; steric and electronic substituent effects of porphyrin ligands on Mn porphyrin-catalyzed stereoselective epoxidn. of cis-stilbene)

L1 ANSWER 7 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:757924 HCAPLUS

DOCUMENT NUMBER: 132:101957

TITLE: Novel Iron Porphyrin-Alkanethiolate Complex with Intramolecular NH.cntdot..cntdot..cntdot.S Hydrogen Bond: Synthesis, Spectroscopy, and Reactivity

AUTHOR(S): Suzuki, Noriyuki; Higuchi, Tsunehiko; Urano, Yasuteru; Kikuchi, Kazuya; Uekusa, Hidehiro; Ohashi, Yuji; Uchida, Takeshi; Kitagawa, Teizo; Nagano, Tetsuo

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, The University of Tokyo, Bunkyo-ku Tokyo, 113-0033, Japan

SOURCE: Journal of the American Chemical Society (1999), 121(49), 11571-11572

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Novel iron porphyrin-alkanethiolate complexes (I; R = NHCOBu-t; X = NHCOCH₃, N(Me)COCH₃, Y = H, 1, 2; X = H, Y = NHCOCH₃, 3) were prepd. in order to examine the influence of the NH.cntdot..cntdot..cntdot.S hydrogen bond on catalytic oxidn. 1-3 Were characterized by FAB MS, IR, EPR, electron absorption and resonance Raman spectroscopies and crystal structure anal. and their redox potentials were measured. Competitive oxidn. of cyclooctane/cyclooctene show that 1-3 effectively catalytically oxidize alkane.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Oxidation catalysts**

(iron porphyrin-alkanethiolates as catalysts for competitive oxidn. of cyclooctane/cyclooctene)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(iron; prepn. of iron porphyrin-alkanethiolates, redox potential and catalyst for competitive oxidn. of cyclooctane/cyclooctene)

L1 ANSWER 8 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:738870 HCAPLUS

DOCUMENT NUMBER: 131:327122

TITLE: Pentachlorophenol and crystal violet degradation in water and soils using heme and hydrogen peroxide

AUTHOR(S): Chen, Shyi-Tien; Stevens, David K.; Kang, Guyoung

CORPORATE SOURCE: Department of Civil and Environment Engineering, University of Wisconsin-Madison, Madison, WI, 53706, USA

SOURCE: Water Research (1999), 33(17), 3657-3665

CODEN: WATRAG; ISSN: 0043-1354

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An abiotic method for oxidative PCP degrdn. in soil under unsatd. conditions and neutral pH was developed. Reagents used were heme (a catalyst) and peroxide (an oxidant). The aq. phase degrdn. of crystal violet and PCP, and the mineralization of PCP in soil were detd. Five factors were investigated to assess their impact on PCP degrdn. in a soil contaminated with wood preserving chems. The results showed that heme and peroxide could efficiently degrade PCP and crystal violet in a short

period of time in either liq. or unsatd. soil systems. In soil, three - control runs showed little degrdn. of PCP, but treatments with heme and peroxide showed a max. of 13% mineralization of PCP. Heme and peroxide concn. were the two most important factors in improving degrdn. of PCP in soil.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Groundwater pollution

Oxidation catalysts

Soil pollution

(pentachlorophenol and crystal violet degrdn. in water and soils using heme and hydrogen peroxide)

IT 14875-96-8, Heme

RL: **CAT (Catalyst use)**; USES (Uses)

(pentachlorophenol and crystal violet degrdn. in water and soils using heme and hydrogen peroxide)

L1 ANSWER 9 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:694971 HCAPLUS

DOCUMENT NUMBER: 132:152102

TITLE: Disulfide-bridge formation through solvent-free oxidation of thiol amino acids catalyzed by peroxidase or hemin on mineral supports

AUTHOR(S): Guibe-Jampel, Eryka; Therisod, Michel

CORPORATE SOURCE: Bat. 410-420, UMR 8615 Reactivite et Syntheses Selectives, Universite Paris-Sud, Orsay, F-91405, Fr.

SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1999), (21), 3067-3068

CODEN: JCPRB4; ISSN: 0300-922X

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Air oxidn. of hydrophilic thiols, e. g., DL-cysteine, glutathione and penicillamine, to disulfides was performed under neutral conditions on mineral supports activated by hemin or peroxidase.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Catalyst supports

Catalyst supports

Oxidation catalysts

Oxidation catalysts

(oxidn. catalyst supports, Hyflo Super Cel; oxidn. of thiol amino acids catalyzed by peroxidase or hemin on mineral supports)

IT 9003-99-0, Peroxidase 16009-13-5, Hemin

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. of thiol amino acids catalyzed by peroxidase or hemin on mineral supports)

L1 ANSWER 10 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:590918 HCAPLUS

DOCUMENT NUMBER: 132:6649

TITLE: A quantitative UV-VIS probe of enantioselectivity in metalloporphyrin catalyzed oxygenation using aluminium model complexes

AUTHOR(S): Collman, James P.; Wang, Zhong; Linde, Christian; Fu, Lei; Dang, Louis; Brauman, John I.

CORPORATE SOURCE: Department of Chemistry, Stanford University,
Stanford, CA, USA

SOURCE: Chemical Communications (Cambridge) (1999), (18),
1783-1784
CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB UV-visible spectroscopy was used to study the selective binding of
enantiomeric pairs of chiral epoxides to an ~~alpha..alpha..beta..beta.~~
binaphthyl-strapped Al porphyrin; the binding selectivity correlates to
the enantioselectivity in the epoxidn. of alkenes catalyzed by its Fe
analog.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**
RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or
reagent); USES (Uses)
(UV-visible spectral binding studies of metalloporphyrins with chiral
epoxides as probe of enantioselectivity in metalloporphyrin-catalyzed
epoxidn.)

IT **Epoxidation catalysts**
(stereoselective; UV-visible spectral binding studies of
metalloporphyrins with chiral epoxides as probe of enantioselectivity
in metalloporphyrin-catalyzed epoxidn.)

L1 ANSWER 11 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:580825 HCAPLUS

DOCUMENT NUMBER: 131:322575

TITLE: Oxidation of phenylbutazone with hydrogen peroxide
catalyzed by 5,10,15,20-tetraarylporphyrinatoiron(III)
chlorides in dichloromethane

AUTHOR(S): Chauhan, S. M. S.; Srinivas, K. A.; Mohapatra, P. P.

CORPORATE SOURCE: Department of Chemistry, University of Delhi, Delhi,
110 007, India

SOURCE: Indian Journal of Chemistry, Section B: Organic
Chemistry Including Medicinal Chemistry (1999),
38B(6), 724-725
CODEN: IJSBDB; ISSN: 0376-4699

PUBLISHER: National Institute of Science Communication, CSIR

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 131:322575

AB The title reactions gave a new product, 4-hydroxyphenylbutazone (I), in
moderate yields.

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Oxidation catalysts**
(5,10,15,20-tetraarylporphyrinatoiron(III) chlorides for phenylbutazone
with hydrogen peroxide)

IT **16456-81-8** 36965-71-6 77439-21-5 91042-27-2
RL: CAT (Catalyst use); USES (Uses)
(oxidn. of phenylbutazone with hydrogen peroxide catalyzed by
5,10,15,20-tetraarylporphyrinatoiron(III) chlorides)

L1 ANSWER 12 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:579137 HCAPLUS

DOCUMENT NUMBER: 131:214001
 TITLE: Preparation of carboxylic acids by oxidation of aliphatic primary alcohols
 INVENTOR(S): Murahashi, Shunichi; Takahashi, Masakatsu
 PATENT ASSIGNEE(S): Kao Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11246471	A2	19990914	JP 1998-46782	19980227
PRIORITY APPLN. INFO.:			JP 1998-46782	19980227

OTHER SOURCE(S): CASREACT 131:214001; MARPAT 131:214001

AB Title compds. R1OH (R1 = C5-22 linear alkyl) are oxidized in the presence of .gtoreq.1 catalysts (A) chosen from compds. comprising Co0, Co2+, Fe2+, Fe3+, Cu2+, Mn2+, and Ni2+, .gtoreq.1 catalysts (B) chosen from Cr, Mo, Mn, Fe, Ni, Cu, Pd, W and their compds. (A .noteq. B), and R2CHO [R2 = C1-22 linear or branched alkyl, alkenyl (substituted) Ph, benzyl, cycloalkyl]. The title compd., dodecanol, was oxidized in the presence of Co(OAc)2, CrO3, and acetaldehyde in AcOEt at 25.degree. for 4.5 h to give 69% lauric acid.

IT **Oxidation catalysts**
 (prepn. of carboxylic acids by oxidn. of aliph. primary alcs. in the presence of aldehydes)

IT 71-48-7, Cobalt acetate 102-54-5, Bis(cyclopentadienyl)iron 132-16-1, Phthalocyanine iron 142-71-2, Copper acetate 555-36-2 993-02-2, Manganese triacetate 1184-54-9, Copper methoxide 1271-28-9, Nickelocene 1309-37-1, Iron trioxide, uses 1313-13-9, Manganese dioxide, uses 1313-27-5, Molybdenum trioxide, uses 1313-99-1, Nickel oxide, uses 1314-35-8, Tungsten trioxide, uses 1317-39-1, Copper oxide, uses 1333-82-0, Chromium trioxide 1335-23-5, Copper iodide 3094-87-9, Iron diacetate 3153-26-2, Bis(acetylacetonato)oxyvanadium 3251-23-8 3375-31-3 5163-37-1 7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7440-47-3, Chromium, uses 7440-50-8, Copper, uses 7758-94-3, Iron dichloride 7783-03-1, Tungstic acid 10049-05-5, Chromium dichloride 11129-27-4, Copper bromide 12006-98-3, Molybdenum boride (MoB) 12022-99-0, Iron disilicide 12150-46-8 12266-04-5 13007-92-6, Chromium hexacarbonyl 13478-18-7, Molybdenum trichloride 13637-68-8, Molybdenum chloride oxide (MoCl2O2) 13718-26-8 13939-06-5, Molybdenum hexacarbonyl 14024-18-1, Tris(acetylacetonato)iron 14024-61-4, Bis(acetylacetonato)palladium 14949-69-0, Bis(hexafluoroacetylacetonato)nickel **16456-81-8**, Chloro(tetraphenylporphinato)iron 18223-42-2 18868-43-4, Molybdenum dioxide 20427-59-2, Copper dihydroxide 22205-45-4, Cuprous sulfide 32195-55-4, Chloro(tetraphenylporphinato)manganese 34946-82-2, Copper(II) trifluoromethanesulfonate

RL: **CAT (Catalyst use); USES (Uses)**
 (oxidn. catalyst; prepn. of carboxylic acids by oxidn. of aliph. primary alcs. in the presence of aldehydes)

L1 ANSWER 13 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1999:522707 HCAPLUS
 DOCUMENT NUMBER: 131:294655

TITLE: Ruthenium-oxo and -tosylimido porphyrin complexes for epoxidation and aziridination of alkenes
AUTHOR(S): Che, Chi-Ming; Yu, Wing-Yiu
CORPORATE SOURCE: Department of Chemistry, The University of Hong Kong, Hong Kong, Peop. Rep. China
SOURCE: Pure and Applied Chemistry (1999), 71(2), 281-288
CODEN: PACHAS; ISSN: 0033-4545
PUBLISHER: Blackwell Science Ltd.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review with 24 refs. Dioxoruthenium(VI) porphyrins including those contg. chiral porphyrinato ligands can be readily prepd. by oxidn. of [RuII(Por)(CO)(MeOH)] with PhIO or meta-chloroperoxybenzoic acid. Similar reactions with PhINTs gave [RuVI(Por)(NTs)2] isolated as air stable solids at room temp. The [RuVI(Por)O2] complexes are competent oxidants for epoxidn. of alkenes with high selectivities. Enantioselective epoxidn. of alkenes giving the corresponding org. epoxides with moderate to good enantioselectivities also were achieved using chiral [RuVI(D4-Por*)O2] [D4-H2Por* = 5,10,15,20-tetrakis-(1S,4R, 5R,8S-1,2,3,4,5,6,7,8-octahydro-1,4:5,8-dimethanoanthracen-9-yl)porphyrin] and [RuV(D2-Por*)O2] complexes. The mechanism of alkene epoxidn. by [RuVI(Por)O2] was examd. Procedures for catalytic epoxidn. of alkenes using Ru porphyrin catalysts also was developed. [RuVI(Por)(NTs)2] was found to undergo aziridination of alkenes and amidation of alkanes in org. solvents at room temp.

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(ruthenium; prepn. of ruthenium-oxo and -tosylimido porphyrin complexes for epoxidn. and aziridination of alkenes)

IT Epoxidation

Epoxidation catalysts

(stereoselective; ruthenium-oxo and -tosylimido porphyrin complexes for epoxidn. and aziridination of alkenes)

L1 ANSWER 14 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:503384 HCAPLUS

DOCUMENT NUMBER: 131:242890

TITLE: Study on P450 enzymic model compound with calix[6]arene-bismetalloporyrins. I. Catalytic performance on the epoxidation of cyclohexene

AUTHOR(S): Li, Donghong; Chen, Shuhua; Zhao, Huaming

CORPORATE SOURCE: Department of Chemistry, Sichuan University, Chengdu, 610064, Peop. Rep. China

SOURCE: Fenzi Cuihua (1999), 13(2), 81-86

CODEN: FECUEN; ISSN: 1001-3555

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Catalytic performance of P 450 enzymic simulation, physicochem. compd. with calix[6]arene-bismetalloporyrins was studied and the effects of the properties of oxidant, temp., substrate concn., catalyst concn., substituent on the benzene ring of porphyrin, and solvent, etc, on the reaction rate were investigated. The results show that calixarene-bismetalloporyrin has a much higher catalytic activity than the corresponding monometalloporyrin, and the reactions obey the

Michaelis-Menten kinetic law. The excellent catalytic property of calixarene-bismetallporphyrin was a result of the multiple recognition and cooperative catalysis (macrocyclic ring of calix[6]arene as the hydrophobic binding site and two metallporphyrins as the catalytic sites).

IT Epoxidation

Epoxidation kinetics

Oxidation catalysts

Oxidation kinetics

Solvent effect

(study on P 450 enzymic model compd. with calix[6]arene-bismetallporphyrin for catalytic performance on epoxidn. of cyclohexene)

IT **Metallporphyrins**

RL: **CAT (Catalyst use)**; PRP (Properties); USES (Uses)

(study on P 450 enzymic model compd. with calix[6]arene-bismetallporphyrin for catalytic performance on epoxidn. of cyclohexene)

L1 ANSWER 15 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:497885 HCAPLUS

DOCUMENT NUMBER: 131:221118

TITLE: Characteristics of cholesterol photooxidation in the presence of metal-free tetraphenylporphyrin

AUTHOR(S): Glagolev, N. N.; Solov'eva, A. B.; Kiryukhin, Yu. I.; Evstigneeva, R. P.; Luzgina, V. N.; Cheremenskaya, O. V.; Pechenkin, A. V.

CORPORATE SOURCE: Russia

SOURCE: Zhurnal Fizicheskoi Khimii (1999), 73(3), 548-553

CODEN: ZFKHA9; ISSN: 0044-4537

PUBLISHER: MAIK Nauka

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Photooxidn. was studied of cholesterol in presence of metal-free tetraphenylporphyrin contg. electron donating (amino-) and accepting (carboxylic-) groups in nonaq. solns.. Cholesterol oxidn. rate depended on solvent polarity and decreased in a series $\text{CCl}_4 > \text{CHCl}_3 > \text{EtOH}$. The photoproducts compn. was different from products of dark oxidn. of cholesterol in the presence of Mn porphyrinate and NaBH_4 . Comparison of the catalytic properties of tetraphenylporphyrin in photosensitized oxidns. of cholesterol and anthracene showed that the rate of the processes depended on the nature of porphyrin substituents.

IT **Metallporphyrins**

RL: **CAT (Catalyst use)**; PRP (Properties); USES (Uses)

(magnesium; rates of photooxidn. of cholesterol and anthracene sensitized by different tetraphenylporphyrins)

IT **Oxidation catalysts**

Oxidation kinetics

(photooxidn.; photooxidn. of cholesterol and anthracene sensitized by tetraphenylporphyrins)

L1 ANSWER 16 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:492434 HCAPLUS

DOCUMENT NUMBER: 132:124442

TITLE: Study on catalysis of sepiolite-supported

metallporphyrins for cyclohexane oxidation with PhIO

AUTHOR(S): Guo, Cancheng; Xu, Jianbing; Long, Mingjie; Huang,

- CORPORATE SOURCE: Zhengming; Liang, Benxi
Dept. of Chemistry and Chemical Engineering, Hunan Univ., Changsha, 410082, Peop. Rep. China
- SOURCE: Hunan Daxue Xuebao, Ziran Kexueban (1999), 26(3), 17-20
CODEN: HDAXE3; ISSN: 1000-2472
- PUBLISHER: Hunan Daxue Xuebao Bianjibu
- DOCUMENT TYPE: Journal
- LANGUAGE: Chinese
- AB Sepiolite-supported metalloporphyrins TPPM(III)L (M = Fe, Mn; L = sepiolite) were prepd. and their selective catalytic activity for cyclohexane oxidn. with PhIO were studied. The sepiolite-supported metalloporphyrins are more effective catalysts for cyclohexane oxidn. with PhIO under the moderate conditions than the unsupported metalloporphyrins and could be reused for many times.
- IT **Metalloporphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts; catalytic activity of sepiolite-supported metalloporphyrins for cyclohexane oxidn. with iodosylbenzene)
- IT Hydroxylation catalysts
Oxidation catalysts
(catalytic activity of sepiolite-supported metalloporphyrins for cyclohexane oxidn. with iodosylbenzene)
- IT **16456-81-8**, Iron(III) tetraphenylporphyrin chloride 32195-55-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts; catalytic activity of sepiolite-supported metalloporphyrins for cyclohexane oxidn. with iodosylbenzene)
- L1 ANSWER 17 OF 344 HCAPLUS COPYRIGHT 2003 ACS
- ACCESSION NUMBER: 1999:479677 HCAPLUS
- DOCUMENT NUMBER: 132:148432
- TITLE: Clip-type ligands for generation of new peroxidase models
- AUTHOR(S): Gutierrez-Gutierrez, R. Ignacio; Cabrera-Nava, Coral; Gonzalez-Vergara, Enrique
- CORPORATE SOURCE: Cent. Quim. Inst. Cienc. Benemerita, Univ. Auton. Puebla, San Manuel, 72570, Mex.
- SOURCE: Congreso Iberoamericano de Quimica Inorganica, Proceedings, 7th, Monterrey, Mex., Apr. 25-30, 1999 (1999), 338-344. Academia Mexicana de Quimica Inorganica: Mexico City, Mex.
CODEN: 67WGAF
- DOCUMENT TYPE: Conference
- LANGUAGE: Spanish
- AB A methodol. for the synthesis of clip-like ligands as starting materials for peroxidase model compds. was developed. The recent report of clip-porphyrins as successful spectroscopic and catalytic models of peroxidases has prompted the synthesis of more rigid and best oriented imidazole contg. ligands. Here we report the synthesis of three ligands based on 1-(3-aminopropyl)imidazole, glycylhistidine and carnosine, and 2,6-dichlorocarbonylpyridine as bridging moiety. The synthesis was carried out in dichloromethane and the product was purified by hexane extn. of a methanolic soln. of the corresponding ligands. The characterization was carried out by UV, IR and NMR spectroscopies. The presence of the amide spectroscopic features clearly indicate the success of the synthetic procedures. The hemin complexes were obtained in phosphate buffer at pH 8, and the peroxidase activity was followed by the

typical guaiacol-H₂O₂ assay. The UV-Vis spectra of the complexes show a mixt. of spin states depending on temp. and concn. Preliminary kinetic data suggest that the complexes are good catalytic models of peroxidase enzymes.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Peroxidation catalysts**

Spin state

(prepn. of clip-type ligands and modeling peroxidase with their hemin complexes)

IT **16009-13-5DP**, Hemin, complexes with clip-type ligands
257906-94-8DP, hemin complexes

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(prepn. of clip-type ligands and modeling peroxidase with their hemin complexes)

L1 ANSWER 18 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:474372 HCAPLUS

DOCUMENT NUMBER: 131:294701

TITLE: Asymmetric Epoxidation of 1,2-Dihydronaphthalene
Catalyzed by Manganese Chioroporphyrins:

Stereoinduction Directed by Steric Exclusion

AUTHOR(S): Perollier, Celine; Pecaut, Jacques; Ramasseul, Rene;
Marchon, Jean-Claude

CORPORATE SOURCE: Laboratoire de Chimie de Coordination, Service de
Chimie Inorganique et Biologique Departement de
Recherche Fondamentale sur la Matiere Condensee,
Grenoble, 38054, Fr.

SOURCE: Inorganic Chemistry (1999), 38(17), 3758-3759

CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Chloromanganese porphyrin complex .alpha..beta..alpha..beta.-atropisomers
[I; M = MnCl; R = OMe, OEt, OBn, ONp, O-p-C₆H₄NO₂, O-m-C₆H₄NO₂,
O(1S)-endo-bornyl, OBut, N(Me)Ph, N(Et)Ph, N(Cy)C(O)NHCy, NHCy] were
investigated as catalysts in the asym. epoxidn. of 1,2-dihydronaphthalene
by iodosylbenzene. The obsd. excess of the 1S,2R epoxide is consistent
with the Re face selectivity expected on steric grounds for the side-on
approach of the substrate. X-ray spectroscopic data and crystal structure
of Ni(II) chioroporphyrins [I; M = Ni; R = O(1S)-endo-bornyl, N(Me)Ph] are
given.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Epoxidation**

Epoxidation catalysts

(stereoselective; asym. epoxidn. of 1,2-dihydronaphthalene catalyzed by
manganese chioroporphyrins)

IT **Metalloporphyrins**

Metalloporphyrins

RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)

(transition metal, manganese and nickel; prepn. of manganese chloro
chioroporphyrin asym. epoxidn. catalysts for dihydronaphthalene and
crystal structures of analogous nickel complexes)

L1 ANSWER 19 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1999:447048 HCAPLUS
 DOCUMENT NUMBER: 131:228386
 TITLE: Study of Synthesis of .mu.-Oxo-bismanganese(III)Porphyrin Compounds and Their Catalysis of Cyclohexane Oxidation by PhIO
 AUTHOR(S): Guo, Can-Cheng; Li, He-Ping; Xu, Jian-Bing
 CORPORATE SOURCE: College of Chemistry and Chemical Engineering, Hunan University, Changsha, 410082, Peop. Rep. China
 SOURCE: Journal of Catalysis (1999), 185(2), 345-351
 CODEN: JCTLA5; ISSN: 0021-9517
 PUBLISHER: Academic Press
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Ten substituted .mu.-oxo-bis[tetraphenylporphinatomanganese (III)] compds. ([TRPPMnIII]2O) were synthesized by the reaction of chloro[tetraphenylporphinatomanganese(III)] (TRPPMnIIICl) with NaOH. Their catalysis of cyclohexane monooxygenation by PhIO under moderate conditions was studied. In contrast with other metalloporphyrins reported so far, .mu.-oxo-bis[tetraphenylporphinatomanganese(III)] compds. are shown to have better catalytic power for cyclohexane hydroxylation by PhIO. The kinetic research showed that the rate consts. k of the cyclohexane reactions had a Hammett relationship to the characteristic consts. σ of substituents R on porphyrin rings. (c) 1999 Academic Press.

REFERENCE COUNT: 63 THERE ARE 63 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
 (manganese; prepn. and catalytic activity of ring-substituted .mu.-oxo-bismanganese(III) tetraphenylporphyrins in cyclohexane oxidn. by PhIO and LFER anal. of substituent effect on catalytic activity)

IT Hydroxylation
 Hydroxylation catalysts
 Hydroxylation kinetics
 Linear free energy relationship
 Ortho effect
 Oxidation
Oxidation catalysts
 Oxidation kinetics
 Reaction constant
 (prepn. and catalytic activity of ring-substituted .mu.-oxo-bismanganese(III) tetraphenylporphyrins in cyclohexane oxidn. by PhIO and LFER anal. of substituent effect on catalytic activity)

IT 12582-61-5 16456-81-8, Iron tetraphenylporphyrin chloride
 RL: CAT (Catalyst use); USES (Uses)
 (prepn. and catalytic activity of ring-substituted .mu.-oxo-bismanganese(III) tetraphenylporphyrins in cyclohexane oxidn. by PhIO and LFER anal. of substituent effect on catalytic activity)

L1 ANSWER 20 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1999:445418 HCAPLUS
 DOCUMENT NUMBER: 131:144244
 TITLE: Catalysis of hydrocarbon oxidation by polyhalogenated

ruthenium porphyrins and studies on the origins of enantioselectivity in metalloporphyrin catalyzed olefin epoxidations

AUTHOR(S): Shalyaev, Kirill V.
CORPORATE SOURCE: Princeton Univ., Princeton, NJ, USA
SOURCE: (1998) 201 pp. Avail.: UMI, Order No. DA9920463
From: Diss. Abstr. Int., B 1999, 60(2), 643

DOCUMENT TYPE: Dissertation
LANGUAGE: English

AB Unavailable
IT Oxidation

Oxidation catalysts
(catalysis of hydrocarbon oxidn. by polyhalogenated ruthenium porphyrins and studies on the origins of enantioselectivity in metalloporphyrin catalyzed olefin epoxidns.)

IT **Metalloporphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysis of hydrocarbon oxidn. by polyhalogenated ruthenium porphyrins and studies on the origins of enantioselectivity in metalloporphyrin catalyzed olefin epoxidns.)

IT Epoxidation

Epoxidation catalysts
(stereoselective; catalysis of hydrocarbon oxidn. by polyhalogenated ruthenium porphyrins and studies on the origins of enantioselectivity in metalloporphyrin catalyzed olefin epoxidns.)

L1 ANSWER 21 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:358585 HCAPLUS
DOCUMENT NUMBER: 131:101967
TITLE: Studies on the mechanisms of oxidation of p-nitrotoluene to p-nitrobenzoic acid with dioxygen in liquid-phase

AUTHOR(S): She, Yuanbin; Zhang, Shufen; Yang, Jinzong
CORPORATE SOURCE: Department of Chemistry and Environmental Engineering, Beijing Polytechnic University, Beijing, 100022, Peop. Rep. China

SOURCE: Beijing Gongye Daxue Xuebao (1999), 25(1), 27-34
CODEN: BGDXD6; ISSN: 0254-0037

PUBLISHER: Beijing Gongye Daxue
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB The mechanisms of oxidn. of p-nitrotoluene to p-nitrobenzoic acid with dioxygen in NaOH-CH₃OH soln. were proposed and investigated. It was hypothesized that reaction mechanisms were that p-nitrotoluene firstly formed p-nitrobenzyl anions as a result of the action of strong alkali NaOH, and anions formed were oxidized by dioxygen activated by metal phthalocyanine catalysts to form p-nitrobenzoic acid through a series of free radical reactions. By studying the catalytic action of metal phthalocyanine catalysts and the cocatalytic action of NaOH and combining them with other exptl. results, the important intermediates such as p-nitrobenzyl anions were indirectly proved, and the mechanisms hypothesized were also indirectly confirmed.

IT Autoxidation

Autoxidation catalysts
Oxidation

Oxidation catalysts
(mechanism of oxidn. of p-nitrotoluene to p-nitrobenzoic acid with

dioxygen in liq.-phase in the presence of metal phthalocyanine + sodium hydroxide catalyst system)

IT 132-16-1, Iron phthalocyanine 147-14-8, .alpha.-Copper phthalocyanine 3317-67-7, Cobalt phthalocyanine 16456-81-8, Iron tetraphenylporphyrin chloride

RL: **CAT (Catalyst use)**; USES (Uses)
(mechanism of oxidn. of p-nitrotoluene to p-nitrobenzoic acid with dioxygen in liq.-phase in the presence of metal phthalocyanine + sodium hydroxide catalyst system)

L1 ANSWER 22 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:295825 HCAPLUS

DOCUMENT NUMBER: 131:31683

TITLE: Naphthalene oxidation by peracetic acid catalyzed by Mn(III) porphine-like complexes: nature of intermediates and pathways of their formation

AUTHOR(S): Barkanova, Svetlana V.; Kaliya, Oleg L.

CORPORATE SOURCE: Organic Intermediates and Dyes Institute, Moscow, 103787, Russia

SOURCE: Journal of Porphyrins and Phthalocyanines (1999), 3(3), 180-187

CODEN: JPPHFZ; ISSN: 1088-4246

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Mn(III) complexes of meso-tetra(o,o'-dichlorophenyl)porphyrin, tetra-tert-butyl-tetraazaporphine and 3,5-octanitrophthalocyanine are efficient catalysts of naphthalene oxidn. by peracetic acid in MeCN soln. The pathways of the reaction and the nature of intermediates and final products depend on the catalyst structure. For meso-tetra(o,o'-dichlorophenyl)porphyrin MnCl and tetra-tert-butyl-tetraazaporphine MnCl the single primary oxidn. product is 1-naphthol. For 3,5-octanitrophthalocyanine MnCl, 2 pathways of naphthalene oxidn. yielding 1-naphthol (as the primary product) and 1,4-naphthoquinone are proposed. The pathway of 1,4-naphthoquinone formation in the 3,5-octanitrophthalocyanine MnCl-catalyzed reaction seems to involve 2 intermediates, 1,4-endo-peroxy-1,4-dihydro- and 2,3-epoxy-1,4-endo-peroxy-1,2,3,4-tetrahydronaphthalene.

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Oxidation

Oxidation catalysts
(intermediates and product formation pathway naphthalene oxidn. by peracetic acid catalyzed by Mn(III) porphine-like complexes)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(intermediates and product formation pathway naphthalene oxidn. by peracetic acid catalyzed by Mn(III) porphine-like complexes)

L1 ANSWER 23 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:281621 HCAPLUS

DOCUMENT NUMBER: 131:27049

TITLE: Synthesis of the tailed tyrosine tetraphenylporphyrin and its complexes

AUTHOR(S): Jia, Mi-Ying; Wang, Jing-Qiu; Sun, Yu-Bin

CORPORATE SOURCE: Department of Chemistry, Hebei Normal University, Shijiazhuang, 050016, Peop. Rep. China

SOURCE: Hebei Shifan Daxue Xuebao, Ziran Kexueban (1999),
23(1), 82-85
CODEN: HSDKEG; ISSN: 1000-5854
PUBLISHER: Hebei Shifan Daxue Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Meso-5-[p-(N-tyrosinebutoxy)phenyl]-10,15,20-tri(p-chlorophenyl) porphyrin (H2L) and its complexes CoL and MLCl (M = Fe, Mn) were synthesized and were characterized by ¹H NMR, IR, UV-visible and fluorescence spectra. The oxidn. of arom. aldehydes with O₂ was investigated in the presence of complexes. It was obsd. the complexes MLCl can all catalyze the oxidn. arom. aldehydes, while H2L is inactive, CoL is the better catalyst compared with other tailed amino acid porphyrins in the same condition.

IT **Oxidation catalysts**
(prepn. and fluorescence spectra of transition metal porphyrinato tyrosine deriv. complex oxidn. catalysts for arom. aldehydes)

IT **Metalloporphyrins**
Metalloporphyrins
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(transition metal; prepn. and fluorescence spectra of transition metal porphyrinato tyrosine deriv. complex oxidn. catalysts for arom. aldehydes)

L1 ANSWER 24 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:279428 HCAPLUS
DOCUMENT NUMBER: 131:104012
TITLE: Sol-gel matrix-mediated synthesis of superparamagnetic iron oxide clusters and supported iron porphyrin oxidation catalysts
AUTHOR(S): Zhang, Lei
CORPORATE SOURCE: Massachusetts Institute of Technology, Cambridge, MA, USA
SOURCE: (1998) No pp., Given Avail.: UMI, Order No. DA0599625
From: Diss. Abstr. Int., B 1999, 59(10), 5480
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable

IT **Metalloporphyrins**
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(iron, supported; silicate-supported superparamagnetic iron oxide and iron porphyrin oxidn. catalysts)

IT Nanocomposites
Oxidation catalysts
(silicate-supported superparamagnetic iron oxide and iron porphyrin oxidn. catalysts)

L1 ANSWER 25 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:234721 HCAPLUS
DOCUMENT NUMBER: 130:334551
TITLE: Kinetic modeling of the bioimitational hydroxylation of methane by hydrogen peroxide
AUTHOR(S): Nagiev, T. M.; Abbasova, T. M.
CORPORATE SOURCE: Inst. Teor. Problem Khim. Tekhnol. im. M.F. Nagieva, Baku, Azerbaijan
SOURCE: Vestnik Moskovskogo Universiteta, Seriya 2: Khimiya (1999), 40(1), 18-21

CODEN: VMUKA5; ISSN: 0579-9384

PUBLISHER: Izdatel'stvo Moskovskogo Universiteta
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Kinetics of gas-phase biomimetic hydroxylation of methane by hydrogen peroxide on hematin adsorbed on Al Mg silicate was modeled using the Michaelis-Menten equation. A mechanism of methane hydroxylation within the bond chain redistribution theory is proposed. The mechanism emphasizes cooperative interaction of acid-base and redox groups with the reactants. Conjugation of catalase and monooxygenase reactions in hematin-catalyzed hydroxylation of methane by hydrogen peroxide were demonstrated.

IT Hydroxylation
Hydroxylation catalysts
Oxidation

Oxidation catalysts

Simulation and Modeling, biological

(kinetic modeling of conjugate catalase and monooxygenase activity of hematin/AlMgSi catalyst in methane hydroxylation with H₂O₂)

IT 1327-43-1, Aluminum magnesium silicate **15489-90-4**, Hematin
RL: BSU (Biological study, unclassified); **CAT (Catalyst use)**;
BIOL (Biological study); USES (Uses)

(kinetic modeling of conjugate catalase and monooxygenase activity of hematin/AlMgSi catalyst in methane hydroxylation with H₂O₂)

L1 ANSWER 26 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:213523 HCAPLUS

DOCUMENT NUMBER: 130:324857

TITLE: Rapid-mixing stopped-flow studies of iron porphyrin enzyme-mimic systems

AUTHOR(S): Xia, Chungu; Li, Zhen; Yu, Chili; Li, Shuben
CORPORATE SOURCE: State Lab. Oxo Synthesis & Selective Oxidation,
Lanzhou INst. Chemical Physics, Chinese Academy
Science, Lanzhou, 730000, Peop. Rep. China

SOURCE: Wuli Huaxue Xuebao (1999), 15(3), 253-258
CODEN: WHXUEU; ISSN: 1000-6818

PUBLISHER: Beijing Daxue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The reactions of different iron porphyrin complexes Fe^{III}(TPP)Cl [tetraphenylporphinatoiron(III) chloride], Fe^{III}(TMOPP)Cl [tetrakis(4-methoxyphenyl)porphinatoiron(III) chloride] and Fe^{III}(TFPP)Cl [tetrakis(pentafluorophenyl)porphinatoiron(III) chloride] with single oxygen atom donor m-chloroperoxybenzoic acid (m-CPBA) under ambient conditions has been investigated by rapid-mixing stopped-flow spectrophotometry. It is shown that the same oxoiron(IV) porphyrin complexes intermediates are produced, and the Fe^{III}(TFPP)Cl model system that incorporated electronic and steric protection of the oxidn.-vulnerable meso position is more stable. Preliminary substituent effect data reveal the following trends for Fe^{III} porphyrin complex decompn.: Fe^{III}(TMOPP)Cl > Fe^{III}(TPP)Cl > Fe^{III}(TFPP)Cl. Epoxidization reactivity of 1,4-diphenylbutadiene by Fe^{III}(TPP)Cl or Fe^{III}(TMOPP)Cl with m-CPBA is enhanced, although the catalytic reactivity of Fe^{III}(TFPP)Cl-m-CPBA model system in CH₂Cl₂ is lower, but is faster in the presence of methanol.

IT **Metalloporphyrins**

RL: BSU (Biological study, unclassified); **CAT (Catalyst use)**;

PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(iron; rapid-mixing stopped-flow studies of MCPBA oxidn. of iron porphyrin complexes as cytochrome P 450 enzyme mimics and of their catalytic activity in 1,4-diphenylbutadiene epoxidn.)

IT Epoxidation

Epoxidation catalysts

Oxidation

Oxidation kinetics

(rapid-mixing stopped-flow studies of MCPBA oxidn. of iron porphyrin complexes as cytochrome P 450 enzyme mimics and of their catalytic activity in 1,4-diphenylbutadiene epoxidn.)

IT 9035-51-2, Cytochrome P 450, reactions **16456-81-8** 36965-71-6
36995-20-7

RL: BSU (Biological study, unclassified); **CAT (Catalyst use)**;

PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(rapid-mixing stopped-flow studies of MCPBA oxidn. of iron porphyrin complexes as cytochrome P 450 enzyme mimics and of their catalytic activity in 1,4-diphenylbutadiene epoxidn.)

L1 ANSWER 27 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:177072 HCAPLUS

DOCUMENT NUMBER: 130:337675

TITLE: Sodium Periodate Epoxidation of Alkenes Catalyzed by Manganese Porphyrins

AUTHOR(S): Mohajer, Daryoush; Tayebbe, Reza; Goudarziafshar, Hameed

CORPORATE SOURCE: Department of Chemistry, Shiraz University, Shiraz, 71454, Iran

SOURCE: Journal of Chemical Research, Synopses (1999), (2), 168-169

CODEN: JRPSDC; ISSN: 0308-2342

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 130:337675

AB Epoxidn. of alkenes with different electronic and steric properties has been performed with high selectivity by sodium periodate in the presence of acetatotetraarylporphinatomanganese(III) complexes contg. electron releasing or withdrawing groups at the ortho positions of the aryl rings, in a two-phase (CH₂Cl₂-H₂O) medium at 24 .+-. 2.degree..

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Epoxidation

Epoxidation catalysts

(sodium periodate epoxidn. of alkenes catalyzed by manganese porphyrins)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(sodium periodate epoxidn. of alkenes catalyzed by manganese porphyrins)

L1 ANSWER 28 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:163627 HCAPLUS

DOCUMENT NUMBER: 130:303894
TITLE: Unusual Kinetic Stability of a Ground-State Singlet Oxomanganese(V) Porphyrin. Evidence for a Spin State Crossing Effect
AUTHOR(S): Jin, Ning; Groves, John T.
CORPORATE SOURCE: Department of Chemistry, Princeton University, Princeton, NJ, 08544, USA
SOURCE: Journal of the American Chemical Society (1999), 121(12), 2923-2924
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Reactive oxomanganese species are involved in a wide range of biol. and catalytic processes involving oxygen activation and transfer. In a recent paper, Collins et al. have shown that the reactivity of an oxoMn(V) tetraamido complex increased upon complexation of metal cations close to an oxoMn(V) center. We show here, by contrast, that moving the site of pos. charge toward the oxoMn(V) center in an isomeric set of oxoMn(V) porphyrin complexation results in an extraordinary kinetic stability as measured by the rates of electron transfer, H atom abstraction, and oxygen transfer reactions. This kinetic stability is shown to be related to the low-spin, d2 electronic state of the oxidant.

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(manganese porphyrin complexes; unusual kinetic stability of ground-state singlet oxoMn(V) porphyrin due to spin state crossing effects)

IT **Oxidation catalysts**
(photooxidn.; unusual kinetic stability of ground-state singlet oxoMn(V) porphyrin due to spin state crossing effects)

IT Electron transfer
Electron transfer kinetics
Electronic state
Energy level splitting
Epoxidation
Epoxidation kinetics
Oxidation catalysts
Oxidation kinetics
(unusual kinetic stability of ground-state singlet oxoMn(V) porphyrin due to spin state crossing effects)

L1 ANSWER 29 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:158855 HCAPLUS
DOCUMENT NUMBER: 130:243540
TITLE: Electrocatalytic reactions by an iron porphyrin/polypyrrole modified electrode monitored by electrochemical quartz crystal microbalance
AUTHOR(S): Liu, Mao-Huang; Su, Y. Oliver
CORPORATE SOURCE: Department of Chemistry, National Taiwan University, Taipei, 10764, Taiwan
SOURCE: Journal of the Chinese Chemical Society (Taipei) (1999), 46(1), 115-119
CODEN: JCCTAC; ISSN: 0009-4536

PUBLISHER: Chinese Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Electropolymer. of pyrrole in aq. soln. was monitored by electrochem. quartz crystal microbalance (EQCM) during potential scan. The film formation process on the electrode is reflected by the frequency decrease for the quartz oscillator as a function of time. The film growth rate is greatly enhanced in the presence of iron(III) meso-tetrakis(3-sulfonatomesityl)porphyrin, which carries 3- of charge. The metalloporphyrin is trapped and remains intact in the polypyrrole films. The ion transport property through the iron porphyrin/polypyrrole film is the reverse of that for pure polypyrrole. Electroreduction of dioxigen and electrooxidation of alkenes are parallel to those in the soln. state.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Oxidation catalysts**
(electrochem.; polypyrrole film containing tetrakis(sulfomesityl)porphyrin as a catalyst for cyclopenteneacetic acid)

IT **Metalloporphyrins**
RL: CAT (Catalyst use); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(iron; electrocatalytic reactions by iron porphyrin/polypyrrole modified electrode monitored by electrochem. quartz crystal microbalance)

L1 ANSWER 30 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:153083 HCAPLUS
DOCUMENT NUMBER: 130:281586
TITLE: Free radicals in oxidation processes
AUTHOR(S): Minisci, Francesco; Fontana, Francesca
CORPORATE SOURCE: Dip. Chim., Politec. Milano, Milan, 20131, Italy
SOURCE: Chimica e l'Industria (Milan) (1998), 80(10), 1309-1316
CODEN: CINMAB; ISSN: 0009-4315

PUBLISHER: Editrice Bias Sas
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB Evidences, concerning the involvement of oxygen- and carbon-centered radicals in several oxidation processes and alkanes, alkenes and alkylbenzenes, are reported. The results for some oxidation (Gif and metalloporphyrin catalysis, use of peracids or of dioxiranes) had been explained by concerted oxygen insertion mechanisms, but they are well explained by radical mechanisms. New syntheses of potential industrial interest by oxidation processes are reported; 29 refs.

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Oxidation catalysts**
(Gif; radicals in oxidation processes)

IT **Metalloporphyrins**
RL: CAT (Catalyst use); USES (Uses)
(radicals in oxidation processes)

L1 ANSWER 31 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:152866 HCAPLUS
DOCUMENT NUMBER: 130:360508
TITLE: Dual Role of Pyridine N-Oxides in Ruthenium

Porphyrin-Catalyzed Asymmetric Epoxidation of Olefins
AUTHOR(S): Gross, Zeev; Ini, Santiago
CORPORATE SOURCE: Department of Chemistry, Technion-Israel Institute of
Technology, Haifa, 32000, Israel
SOURCE: Inorganic Chemistry (1999), 38(7), 1446-1449
CODEN: INOCAJ; ISSN: 0020-1669
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The most important intermediates in the ruthenium porphyrin-catalyzed
epoxidn. of olefins by pyridine N-oxides are N-oxide-coordinated RuIV:O
complexes. With a chiral ruthenium porphyrin catalyst, the
enantioselective epoxidn. of terminal arom. olefins proceeds with up to
80% ee.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(ruthenium porphyrin complexes; enantioselective epoxidn. of olefins by
pyridine N-oxide using chiral ruthenium porphyrin catalyst)

IT Epoxidation

Epoxidation catalysts

(stereoselective; enantioselective epoxidn. of olefins by pyridine
N-oxide using chiral ruthenium porphyrin catalyst)

L1 ANSWER 32 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:122254 HCAPLUS

DOCUMENT NUMBER: 130:296478

TITLE: Direct oxidation of aromatic compounds using
iron-containing catalysts

AUTHOR(S): Chiba, Koji; Tagaya, Hideyuki; Kadokawa, Junichi
CORPORATE SOURCE: Fac. Eng., Yamagata Univ., Yonezawa, 992-8510, Japan
SOURCE: Yamagata Daigaku Kiyo, Kogaku (1999), 25(2), 87-93
CODEN: YDKKAR; ISSN: 0085-834X

PUBLISHER: Yamagata Daigaku

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Oxidn. of benzene by H2O2 and air was carried out in the presence of a
catalytic amt. of ferrocene as a new oxidn. catalyst. In the case of the
oxidn. by H2O2, highest yield of phenol based on H2O2 was 81.6 %. On the
other hand, the oxidn. of benzene by air using ferrocene and CuCl as
catalysts gave phenol in 4.7% yield based on benzene. When silica gel was
added to the mixt., the yield of phenol remarkably increased (12.2%). The
yield of phenol increased by addn. of H2O2 after 4 h and 8 h in the H2O2
oxidn. system. This phenomenon was also appeared by addn. of CuCl in the
air oxidn. system. Direct oxidn. of 2,3,6-trimethylphenol, (TMP) to
trimethyl-p-benzoquinone (TMQ) using H2O2 catalyzed by hematin was carried
out in 80-90% acetic acid. The yield of TMQ detd. by gas chromatog. anal.
was almost quant. The oxidn. of the other Me substituted phenols
catalyzed by hematin was also examd. The yield of p-benzoquinones
depended on both the no. of substituted groups and steric hindrance of
p-position.

IT Oxidation

Oxidation catalysts

(direct oxidn. of benzene or phenols using iron-contg. catalysts)

IT 102-54-5, Ferrocene **15489-90-4**, Hematin

RL: **CAT (Catalyst use)**; USES (Uses)
(direct oxidn. of benzene or phenols using iron-contg. catalysts)

L1 ANSWER 33 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:110607 HCAPLUS
DOCUMENT NUMBER: 130:311666
TITLE: Enantioselective epoxidation of unfunctionalized olefins catalyzed by chiral binaphthyl-strapped metalloporphyrins
AUTHOR(S): Straumanis, Andrei Russell
CORPORATE SOURCE: Stanford Univ., Stanford, CA, USA
SOURCE: (1998) 128 pp. Avail.: UMI, Order No. DA9837249
From: Diss. Abstr. Int., B 1998, 59(6), 2763
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable
IT **Epoxidation catalysts**
(enantioselective epoxidn. of unfunctionalized olefins catalyzed by chiral binaphthyl-strapped metalloporphyrins)
IT **Metalloporphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(enantioselective epoxidn. of unfunctionalized olefins catalyzed by chiral binaphthyl-strapped metalloporphyrins)

L1 ANSWER 34 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:755326 HCAPLUS
DOCUMENT NUMBER: 130:182052
TITLE: Direct hydroperoxygenation of conjugated olefins catalyzed by cobalt(II) porphyrin
AUTHOR(S): Sugamoto, Kazuhiro; Matsushita, Yoh-ichi; Matsui, Takanao
CORPORATE SOURCE: Faculty of Engineering, Miyazaki University, Miyazaki, 889-2192, Japan
SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1998), (23), 3989-3998
CODEN: JCPRB4; ISSN: 0300-922X
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 130:182052
AB A novel and direct synthesis of hydroperoxy compds. from various types of conjugated olefins was established via cobalt(II) porphyrin-catalyzed hydroperoxygenation. The reaction of .alpha., .beta., .gamma., .delta.-unsatd. carbonyl compds., acrylic esters, .alpha.-substituted acrylic esters and styrene derivs. with mol. oxygen and triethylsilane in the presence of a catalytic amt. of cobalt(II) porphyrin proceeded rapidly to give the corresponding hydroperoxygenated compds. in high or moderate yields.
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Peroxidation
Peroxidation catalysts
(hydroperoxidn.; direct hydroperoxygenation of conjugated olefins catalyzed by cobalt(II) porphyrin)
IT **14172-90-8** 19496-19-6 52242-06-5 100165-82-0 120882-91-9
204860-96-8

RL: **CAT (Catalyst use)**; USES (Uses)
(direct hydroperoxygenation of conjugated olefins catalyzed by cobalt(II) porphyrin)

L1 ANSWER 35 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:700152 HCAPLUS
DOCUMENT NUMBER: 130:3548
TITLE: Hydroxylation of simple alkanes by iodosylbenzene is catalyzed more efficiently by second than by third generation iron(III) porphyrins
AUTHOR(S): Gross, Zeev; Simkhovich, Liliya
CORPORATE SOURCE: Department of Chemistry, The Technion, Israel
Institute of Technology, Haifa, 32000, Israel
SOURCE: Tetrahedron Letters (1998), 39(44), 8171-8174
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The catalytic activities of aryl-chlorinated Fe tetraarylporphyrins with and without chloro substituents at the .beta.-pyrrole positions- 3rd and 2nd generation catalysts, resp.-were compared for the hydroxylation of ethylbenzene and cyclohexane by iodosylbenzene. Despite the somewhat larger stability of the former complexes to the oxidative reaction conditions, they are less efficient catalysts than the corresponding unsubstituted complexes, which catalyze the transformation of the alkanes into their oxygenated products with almost 80% yield at >10% conversion. Probably for the 3rd generation catalyst the extremely short life time of the most potent intermediate is responsible for the relatively low efficiency in catalysis.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Hydroxylation
Hydroxylation catalysts
Hydroxylation kinetics
Oxidation

Oxidation catalysts

Oxidation kinetics
Solvent effect
Substituent effects

(hydroxylation of simple alkanes by iodosylbenzene catalyzed more efficiently by second than by third generation iron(III) porphyrins)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(hydroxylation of simple alkanes by iodosylbenzene catalyzed more efficiently by second than by third generation iron(III) porphyrins)

L1 ANSWER 36 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:686636 HCAPLUS
DOCUMENT NUMBER: 130:46617
TITLE: Manganese Porphyrin Heterodimers and -trimers in Aqueous Solution
AUTHOR(S): Ruhlmann, Laurent; Nakamura, Asao; Vos, Johannes G.; Fuhrhop, Juergen-Hinrich
CORPORATE SOURCE: Institut fuer Organische Chemie, Freien Universitaet Berlin, Berlin, D-14195, Germany

SOURCE: Inorganic Chemistry (1998), 37(23), 6052-6059
CODEN: INOCAJ; ISSN: 0020-1669
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Noncovalent face-to-face heterodimers and -trimers between .beta.-tetracationic and meso-tetraanionic Mn(III) porphyrins were prepd. in bulk H2O at pH 12. They are held together by Coulomb interactions between four .beta.-methylpyridinium and meso-phenylsulfonate or meso-phenylcarboxylate ion pairs in eclipsed orientations. Spectroelectrochem. was used to characterize the redox products and to establish reversibility. UV-visible titrns. indicate quant. trimerization at concns. >10⁻⁵ M. Cyclic voltammetry shows that all three Mn(III) ions were oxidized simultaneously to Mn(IV) at potentials close to 300 mV at pH 12. Electroredn. to Mn(II) was often not obsd. in the trimers, although the monomers reacted readily under the same conditions. Quant. chem. redn. of Mn(III) to Mn(II) porphyrin trimers was, however, achieved with dithionite. Trimers contg. three paramagnetic Mn(II) or Mn(IV) ions are thus easily accessible. The heterodimers and -trimers and homodimers also catalyzed the formation of dioxygen by electrooxidn. of Mn(III) to Mn(IV) between 0.6 and 2.0 V while at pH 12.

REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Oxidation catalysts**
(electrochem.; manganese porphyrin ion pairs for water to oxygen)

IT **Metalloporphyrins**
Metalloporphyrins
RL: CAT (Catalyst use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(transition metal, manganese; prepn. and cyclic voltammetry and ion pairing and electrooxidn. catalyst for water)

L1 ANSWER 37 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:683841 HCAPLUS

DOCUMENT NUMBER: 130:109841

TITLE: Stoichiometric enantioselective alkene epoxidation with a chiral dioxoruthenium(VI) D4-porphyrinato complex

AUTHOR(S): Lai, Tat-Shing; Kwong, Hoi-Lun; Zhang, Rui; Che, Chi-Ming

CORPORATE SOURCE: Department of Chemistry, The University of Hong Kong, Hong Kong, Hong Kong

SOURCE: Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1998), (21), 3559-3564
CODEN: JCDBTI; ISSN: 0300-9246

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A dioxoruthenium(VI) complex contg. a D4-porphyrinato ligand por* {H2por* = 5,10,15,20-tetrakis[(1S,4R,5R,8S)-1,2,3,4,5,6,7,8-octahydro-1,4:5,8-dimethanoanthracen-9-yl]porphyrin} was prepd. by oxidn. of its Ru(II) carbonyl precursor with m-chloroperoxybenzoic acid and characterized by spectroscopic methods. The [RuVI(por*)O2] complex undergoes enantioselective epoxidn. of alkenes and the highest enantiomeric excess (ee) attainable is 77%. In the presence of pyrazole the complex transforms to [RuIV(por*)(pz)2] when reacting with alkenes. The kinetics

of the epoxidn. of para-substituted styrenes was studied. The exptl. rate law is $-d[\text{RuVI}]/dt = k_2[\text{RuVI}] \text{ alkene}$. The 2nd order rate consts. k_2 at 25.degree. fall in a narrow range, 2.1 .times. 10⁻³-9.7 .times. 10⁻³ dm³ mol⁻¹ s⁻¹. Comparison of the Hammett plot log k_{rel} vs. σ_{bul} with those for achiral analogs [RuVI(tpp)O₂] (H₂tpp = 5,10,15,20-tetraphenylporphyrin) and [RuVI(oep)O₂] (H₂oep = 2,3,7,8,12,13,17,18-octaethylporphyrin) suggests the formation of a radical intermediate for the alkene epoxidns. Both [RuII(por*)(CO)(EtOH)] and [RuVI(por*)O₂] were examd. for enantioselective catalysis. Enantioselectivities of the stoichiometric and catalytic reactions showed good correlation. There is no solvent dependence on enantioselectivity when changing the solvent from CH₂Cl₂ to benzene.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Epoxidation

Epoxidation catalysts

(stereoselective; stoichiometric enantioselective alkene epoxidn. with a chiral dioxoruthenium(VI) D4-porphyrinato complex)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(vanadyl, chiral; stoichiometric enantioselective alkene epoxidn. with a chiral dioxoruthenium(VI) D4-porphyrinato complex)

L1 ANSWER 38 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:680155 HCAPLUS

DOCUMENT NUMBER: 129:330386

TITLE: Remarkable efficiency of iron(III) versus manganese(III) tetraphenylporphyrins as catalysts for fast and quantitative oxidation of sulfides into sulfones by hydrogen peroxide

AUTHOR(S): Marques, Antonio; Di Matteo, Massimo; Ruasse, Marie-Francoise

CORPORATE SOURCE: Institut de Topologie et de Dynamique des Systemes de l'Universite Paris 7, Denis Diderot, associe au CNRS, URA 34, Paris, 75005, Fr.

SOURCE: Canadian Journal of Chemistry (1998), 76(6), 770-775
CODEN: CJCHAG; ISSN: 0008-4042

PUBLISHER: National Research Council of Canada

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The efficiency of various metallo-phthalocyanines (Pht) and -tetraphenylporphyrins (TPP) as catalysts for the H₂O₂ oxidns. of dibenzyl sulfide, phenylchloroethylsulfide, and thioanisole is investigated in ethanol and acetonitrile, using imidazole as a cocatalyst. Neither PhtNiIII nor TPPCoII exhibits any catalytic activity. PhtMnII and TPPMnIIICl accelerate markedly these reactions but do not promote quant. oxidns., at most 70% of the sulfides being transformed into sulfoxides. In contrast, with PhtFeII sulfoxides are obtained with a 100% yield from sulfides. Finally, the only catalyst able to oxidize sulfides rapidly (<5 min), completely and quant. (100% sulfone) is TPPFeIIICl in EtOH. The absence of any byproduct, disulfide in particular, suggests that a free sulfenium radical cation is not an active intermediate in these reactions. The marked differences in the behavior of TPPMnIIICl and TPPFeIIICl are analyzed by comparing the rates of the catalyst decompn., of the sulfoxide

and sulfone formation as a function of the hydrogen peroxide concn. The results are discussed in terms of a competition between the several oxidative pathways and a possible mechanism for the oxygen transfer to sulfides.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Oxidation

Oxidation catalysts

(iron(III) vs. manganese(III) tetraphenylporphyrins as catalysts for fast and quant. oxidn. of sulfides into sulfones by hydrogen peroxide)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(iron(III) vs. manganese(III) tetraphenylporphyrins as catalysts for fast and quant. oxidn. of sulfides into sulfones by hydrogen peroxide)

IT **16456-81-8, Iron tetraphenylporphyrin chloride**

RL: **CAT (Catalyst use)**; USES (Uses)

(iron(III) vs. manganese(III) tetraphenylporphyrins as catalysts for fast and quant. oxidn. of sulfides into sulfones by hydrogen peroxide)

L1 ANSWER 39 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:655184 HCAPLUS

DOCUMENT NUMBER: 130:13651

TITLE: 'Oxo-hydroxo tautomerism' as useful mechanistic tool in oxygenation reactions catalyzed by water-soluble metalloporphyrins

AUTHOR(S): Bernadou, Jean; Meunier, Bernard

CORPORATE SOURCE: Laboratoire de Chimie de Coordination, CNRS, Toulouse, 31077, Fr.

SOURCE: Chemical Communications (Cambridge) (1998), (20), 2167-2173

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 53 refs. High valent metal-oxo species have been evoked as active intermediates in many different oxidn. reactions using manganese or iron porphyrin complexes as catalysts and oxygen atom donors (H₂O₂, PhIO, NaOCl, KHSO₅, ... etc.) or dioxygen assocd. to a reductant as oxygen atom source. When these metalloporphyrin-catalyzed oxidns. are performed in water, such metal-oxo species are able to transfer an oxygen atom coming from either the oxygen source or from bulk water. This fact has been explained by the so-called oxo-hydroxo tautomerism, a mechanism involving a rapid shift of two electrons and one proton from a hydroxo ligand (electron-rich ligand formed by deprotonation of an aqua ligand) to the trans oxo species (electron-poor ligand) leading to the transformation of the hydroxo ligand into an electrophilic oxo entity on the opposite side of the initial oxo. This 'oxo-hydroxo tautomerism', evidenced by using 18O-labeled water, has been used as mechanistic tool to unambiguously characterize oxygen atom transfer mechanisms mediated by metal-oxo species in opposition to mechanisms related to free radical oxidn. reactions.

REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Oxidation

Oxidation catalysts

Tautomers

(oxo-hydroxo tautomerism as useful mechanistic tool in oxygenation reactions catalyzed by water-sol. metalloporphyrins)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(oxo-hydroxo tautomerism as useful mechanistic tool in oxygenation reactions catalyzed by water-sol. metalloporphyrins)

L1 ANSWER 40 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:653250 HCAPLUS
DOCUMENT NUMBER: 130:15031
TITLE: Oxidative degradation of kraft lignin model compounds by anionic and cationic porphyrins
AUTHOR(S): Crestini, Claudia; Saladino, Raffaele; Giovannozzi-Sermanni, Giovanni; Tagliatesta, Pietro; Boschi, Tristano
CORPORATE SOURCE: Agrobiology and Agrochemistry Department, University of Tuscia, Viterbo, 01100, Italy
SOURCE: Advances in Lignocellulosics Chemistry for Ecologically Friendly Pulping and Bleaching Technologies, European Workshop on Lignocellulosics and Pulp, 5th, University of Aveiro, Aveiro, Port., Aug. 30-Sept. 2, 1998 (1998), 277-280. University of Aveiro: Aveiro, Port.
CODEN: 66TZAG
DOCUMENT TYPE: Conference
LANGUAGE: English
AB The biomimetic oxidn. of 5-5' condensed and diphenylmethane lignin model compds. with several water sol. anionic and cationic iron and manganese porphyrins in the presence of hydrogen peroxide is reported. The oxidative efficiency of manganese and iron meso-tetra(2,6-dichloro-3-sulfonatophenyl)porphyrin chlorides (TDCSPPMnCl and TDCSPPFeCl), manganese meso-tetra(3-sulfonatophenyl)porphyrin chlorides, (TSPPMnCl), meso-tetra(N-methylpyridinio)porphyrin manganese pentaacetate (TPyMePMnAc5) were compared on the basis of the oxidn. extent of the models tested. Anionic and cationic water sol. manganese porphyrins were found more effective in degrading kraft lignin and lignin substructures than iron porphyrins. Among Mn porphyrins the cationic TPyMePMnAc5, never used before in lignin oxidn., showed to be the most efficient catalyst.
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Oxidation

Oxidation catalysts

(oxidative degrdn. of kraft lignin model compds. by anionic and cationic porphyrins in presence of)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(oxidative degrdn. of kraft lignin model compds. by anionic and cationic porphyrins in presence of)

L1 ANSWER 41 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:647951 HCAPLUS
DOCUMENT NUMBER: 130:38248
TITLE: Metalloporphyrin-catalyzed epoxidations
AUTHOR(S): Halterman, Ronald L.
CORPORATE SOURCE: Germany
SOURCE: Transition Metals for Organic Synthesis (1998), Volume 2, 300-306. Editor(s): Beller, Matthias; Bolm, Carsten. Wiley-VCH Verlag GmbH: Weinheim, Germany.
CODEN: 66TUAZ

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review with 29 refs.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Epoxidation catalysts**
(metalloporphyrin-catalyzed epoxidns.)IT **Metalloporphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(metalloporphyrin-catalyzed epoxidns.)

L1 ANSWER 42 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:613997 HCAPLUS

DOCUMENT NUMBER: 129:221770

TITLE: Binuclear iron complex as reduction and oxidation catalyst with high catalyst activity

INVENTOR(S): Tsuchita, Eishun; Yamamoto, Kimihisa; Oyaizu, Kenichi; Haryono, Agus; Natori, Junichiro

PATENT ASSIGNEE(S): Foundation for Scientific Technology Promotion, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10249208	A2	19980922	JP 1997-55233	19970310
PRIORITY APPLN. INFO.:			JP 1997-55233	19970310

AB The trivalent binuclear Fe complex catalyst for O redn. and oxidn. of org. compds. has oxidn. potential 0-2 V. The catalyst is useful for 4-electron redn. of dissolved O in H2O or an org. solvent and gives a fuel cell electrode or an O sensor.

IT **Oxidation catalysts**
Reduction catalysts
(.mu.-oxo binuclear Fe-porphyrin complex as redn. and oxidn. catalyst with high catalyst activity)

IT **Metalloporphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(.mu.-oxo binuclear Fe-porphyrin complex as redn. and oxidn. catalyst with high catalyst activity)

L1 ANSWER 43 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:598938 HCAPLUS

DOCUMENT NUMBER: 130:81041

TITLE: Catalytic Oxidation of Saturated C-H Bonds by Tetrabutylammonium Periodate and Manganese Porphyrins

AUTHOR(S): Mohajer, Daryoush; Bagherzadeh, Mojtaba

CORPORATE SOURCE: Department of Chemistry, Shiraz University, Shiraz, 71454, Iran

SOURCE: Journal of Chemical Research, Synopses (1998), (9), 556-557

CODEN: JRPSDC; ISSN: 0308-2342

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 130:81041

AB Arylalkanes and cycloalkanes are oxidized to their corresponding alcs. and ketones with tetra-n-butylammonium periodate in the presence of manganese(III) porphyrin catalysts and imidazole in CH₂Cl₂, with low to high yields and moderate to high selectivities at ambient temp.

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Oxidation

Oxidation catalysts

(oxidn. of arylalkanes and cycloalkanes by tetrabutylammonium periodate catalyzed by manganese porphyrins)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. of arylalkanes and cycloalkanes by tetrabutylammonium periodate catalyzed by manganese porphyrins)

L1 ANSWER 44 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:574265 HCAPLUS

DOCUMENT NUMBER: 129:260285

TITLE: An efficient model of cytochrome P-450, monooxygenase reactivity: polymer-supported metalloprotoporphyrin IX (M = Fe, Mn)

AUTHOR(S): Shin, Ji Young; Kim, Kyung-A.; Kim, Hye Gyun; Paeng, Insook Rhee; Kim, Do-Gyun; Paeng, Ki-Jung

CORPORATE SOURCE: Department of Chemistry, Seoul Women's University, Seoul, 139-774, S. Korea

SOURCE: Bulletin of the Korean Chemical Society (1998), 19(8), 875-878

CODEN: BKCSDE; ISSN: 0253-2964

PUBLISHER: Korean Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polymer-supported metalloprotoporphyrin IX (M = Fe, Mn) catalysts were prep'd. and tested in the epoxidn. of cyclohexene with H₂O₂. Pyridine and imidazole were used as axial ligands. The linkages between metalloprotoporphyrin IX and polymer were stable, and high turnover nos. were possible.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Epoxidation catalysts**

Polymer-supported reagents

(polymer-supported metalloprotoporphyrin IX epoxidn. catalysts as cytochrome P 450 monooxygenase model)

IT 9003-53-6DP, Polystyrene, reaction products with metalloprotoporphyrins IX **14875-96-8DP**, Iron protoporphyrin IX, polymer-bound

21393-64-6DP, Manganese protoporphyrin IX, polymer-bound 24979-74-6DP,

4-Hydroxystyrene-styrene copolymer, reaction products with

metalloprotoporphyrins IX 24980-54-9DP, Styrene-2-vinylpyridine

copolymer, reaction products with metalloprotoporphyrins IX

26222-40-2DP, Styrene-4-vinylpyridine copolymer, reaction products with

metalloprotoporphyrins IX 60755-40-0DP, Styrene-1-vinylimidazole

copolymer, reaction products with metalloprotoporphyrins IX

149642-75-1DP, reaction products with metalloprotoporphyrins IX

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(polymer-supported metalloprotoporphyrin IX epoxidn. catalysts as cytochrome P 450 monooxygenase model)

L1 ANSWER 45 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:557434 HCAPLUS
DOCUMENT NUMBER: 129:250747
TITLE: Synthesis and catalytic capability of
metalloporphyrins encapsulated in molecular sieve
supercages
AUTHOR(S): Wang, Xing-Qiao; Gao, Shuang; Cao, Chang-Sheng; Yu,
Lian-Xiang; Guo, Jing-Fu; Cao, Xi-Zhang
CORPORATE SOURCE: Department of Chemistry, Jilin University, Changchun,
130023, Peop. Rep. China
SOURCE: Journal of Porphyrins and Phthalocyanines (1998),
2(3), 209-217
CODEN: JPPHFZ; ISSN: 1088-4246
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A stepwise synthesis method was used to encapsulate tetrachloro-
tetramethyl porphyrin in NaCoX mol. sieve supercages. Characterization of
the encapsulated porphyrin was carried out by UV-vis and IR Spectroscopy,
DTA, SEM and EPR. A comparison was made of the activities of
tetrachloro-tetramethyl porphyrin, its Co(II) complex, NaCoX mol. sieve
and the encapsulated porphyrin as catalysts in the oxidn. reactions of
styrene and p-cresol. The stability and catalytic capability of the
metalloporphyrin were increased after combination of the porphyrin with
the mol. sieve. In addn., this new type of catalyst, tetrachloro-
tetramethyl porphyrin encapsulated in NaCoX mol. sieve supercages, not
only possesses the advantages of both the porphyrin and the mol. sieve,
but also makes up for their resp. deficiencies. In this study, another
method called sealing-melting was also used to encapsulate the Zn(II)
complex of meso-tetraphenyl-tetrabenzoporphyrin into NaY mol. sieve
supercages. The catalytic capabilities of the free Zn(II) complex of
meso-tetraphenyl-tetrabenzoporphyrin, the Zn(II) complex encapsulated in
NaY mol. sieve supercages and the NaY mol. sieve itself in the oxidn. of
styrene by hydrogen peroxide were also studied. The exptl. results again
confirmed that both the stability and catalytic capability of the
metalloporphyrin encapsulated in mol. sieve supercages are increased.
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
IT Encapsulation
Oxidation catalysts
(synthesis and catalytic capability of metalloporphyrins encapsulated
in mol. sieve supercages)
IT **Metalloporphyrins**
Zeolite NaY
RL: **CAT (Catalyst use)**; USES (Uses)
(synthesis and catalytic capability of metalloporphyrins encapsulated
in mol. sieve supercages)

L1 ANSWER 46 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:547762 HCAPLUS
DOCUMENT NUMBER: 129:141158
TITLE: A study of synthesis, immobilization and catalytic
capability of metalloporphyrin
AUTHOR(S): Wang, Xing-Qiao; Gao, Shuang; Ca, Chang-Sheng; Yu,
Lian-Xiang; Guo, Jing-Fu; Shun, Shu-Ju; Cao, Xi-Zhang
CORPORATE SOURCE: Department of Chemistry, Jilin University, Changchun,

SOURCE: 130023, Peop. Rep. China
Chemical Research in Chinese Universities (1998),
14(2), 111-115
CODEN: CRCUED; ISSN: 1000-9213
PUBLISHER: Higher Education Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A stepwise-synthesis method was used to immobilize tetrachloro-tetramethyl porphyrins in the supercages of NaCoX mol. sieve. The immobilized porphyrin was characterized by means of UV-Vis, IR, DTA, SEM and EPR. A comparison was made for the activities among tetrachloro-tetramethyl porphyrins, its cobalt (II) complex, NaCoX mol. sieve and the immobilized porphyrin as catalysts in the oxidn. reaction of styrene and p-cresol. The stability and catalytic capability of the metalloporphyrin is increased after the combination of porphyrin with mol. sieve. In addn., this new type of catalyst tetrachloro-tetramethyl porphyrin immobilized in the supercages of NaCoX mol. sieve not only possesses the advantages of both porphyrin and mol. sieve, but also makes up for their resp. deficiencies. The exptl. results confirmed that both the stability and catalytic capability of metalloporphyrin immobilized in the supercages of mol. sieve are increased.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Oxidation catalysts**
(for styrene and p-cresol; synthesis, immobilization and catalytic capability of metalloporphyrin)

IT **Metalloporphyrins**
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis, immobilization and catalytic capability of metalloporphyrin)

L1 ANSWER 47 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:435721 HCAPLUS

DOCUMENT NUMBER: 129:55734

TITLE: Process and transition metal-complex phthalocyanine or porphyrin catalysts for the oxidation of cyclohexane into a mixture of cyclohexanone and cyclohexanol

INVENTOR(S): Raja, Robert; Ratnasamy, Paul

PATENT ASSIGNEE(S): Council of Scientific and Industrial Research, India

SOURCE: U.S., 7 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5767320	A	19980616	US 1996-687839	19960726
PRIORITY APPLN. INFO.:			IN 1995-DE1791	19950929

AB Cyclohexane is oxidized to a mixt. of cyclohexanone and cyclohexanol in high yield and selectivity by reaction with oxygen at 20-80.degree./5-1000 psig in the presence of a transition metal complex of phthalocyanines or porphyrins where some or all of the hydrogen atoms of the phthalocyanine or porphyrin have been replaced by electron-withdrawing groups (e.g., chromium tetradecafluorophthalocyanine) .

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(electron-withdrawing group-substituted **transition metal complexes**; process and transition metal-complex phthalocyanine or porphyrin catalysts for the oxidn. of cyclohexane into a mixt. of cyclohexanone and cyclohexanol)

IT **Oxidation catalysts**

(liq.-phase; electron-withdrawing group-substituted transition metal complexes of phthalocyanines or porphyrins for the conversion of cyclohexane into a mixt. of cyclohexanone and cyclohexanol)

L1 ANSWER 48 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:409474 HCAPLUS

DOCUMENT NUMBER: 129:82055

TITLE: Comparative ¹H NMR and UV-visible studies of polyene polymer epoxidations catalyzed by iron(III), manganese(III) and chromium(III) porphyrins
AUTHOR(S): Davoras, E. M.; Diaper, R.; Dervissi, A.; Tornaritis, M. J.; Coutsolelos, A. G.

CORPORATE SOURCE: Laboratory of Bioinorganic Coordination Chemistry, Department of Chemistry, School of Sciences, University of Crete, Heraklion, 71 409, Greece
SOURCE: Journal of Porphyrins and Phthalocyanines (1998), 2(1), 53-60

CODEN: JPPHFZ; ISSN: 1088-4246

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The catalytic epoxidn. of cis-polybutadiene was studied in two-phase systems, CH₂Cl₂/H₂O and PhIO(solid)/CH₂Cl₂, using chlorochromium(III), chloromanganese(III) and chloroiron(III) tetraphenylporphyrin complexes as catalysts. Comparison of the catalytic activity of these three catalysts showed that the manganese porphyrin is the most suitable catalyst for this reaction. The results are based on reaction product ratios as detd. by ¹H NMR. UV-visible spectroscopy allowed monitoring of the metalloporphyrin evolution during the catalytic reaction.

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Epoxidation catalysts**

(comparative ¹H NMR and UV-visible study of epoxidn. of polybutadiene catalyzed by iron, manganese and chromium porphyrins)

IT **16456-81-8**, Iron meso-tetraphenylporphyrin chloride 28110-70-5,
Chromium tetraphenylporphyrin chloride 32195-55-4

RL: **CAT (Catalyst use)**; USES (Uses)
(comparative ¹H NMR and UV-visible study of epoxidn. of polybutadiene catalyzed by iron, manganese and chromium porphyrins)

L1 ANSWER 49 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:408445 HCAPLUS

DOCUMENT NUMBER: 129:197079

TITLE: A new active intermediate in monooxygenations catalyzed by iron porphyrin complexes

AUTHOR(S): Murakami, Tatsuya; Yamaguchi, Kazuya; Watanabe, Yoshihito; Morishima, Isao

CORPORATE SOURCE: Dep. of Molecular Engineering, Graduate School of

SOURCE: Engineering, Kyoto University, Kyoto, 606-8501, Japan
Bulletin of the Chemical Society of Japan (1998),
71(6), 1343-1353
CODEN: BCSJA8; ISSN: 0009-2673
PUBLISHER: Chemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A new type of high-valent oxoiron porphyrin (3b) was prepared by the reaction of FeIII(tdcpp) (1b) [tdcpp = 5,10,15,20-tetrakis(2,6-dichlorophenyl)porphyrin] with an oxidant such as p-nitroperbenzoic acid and pentafluoriodosylbenzene at -90.degree. in CH₂Cl₂ in the presence of a small amt. of methanol. The UV-visible spectrum of 3b (λ_{max} at 418 and around 550 nm) is similar to that of O:FeIV(tdcpp) (4b, λ_{max} 419, 543 nm). However, titrn. of 3b by iodide ion indicates that the oxidn. state of 3b is two-electron oxidized from the iron(III) state. Further, 3b catalyzes oxygenation of olefins such as styrene even at -90.degree.. Possible formulation of 3b as a π -cation radical is readily ruled out by deuterium NMR observation. The soln. magnetic susceptibility (μ_{eff} = 4.0 \pm 0.2 μ_B) of 3b has three unpaired electrons. These results indicate the formal description of 3b as being a high spin complex of either an O:Fe(V) porphyrin or π -O-Fe(IV) porphyrin. The same oxidn. of 1b in the absence of methanol gave O:FeIV(tdcpp) π -cation radical (2b). The authors think the ligation of methanol causes the destabilization of iron d orbitals and eventually inverts the energy levels between the iron dxz, dyz orbitals and the porphyrin HOMO orbital (a_{2u}) since the a_{2u} orbital is stabilized by the introduction of electron-withdrawing groups on the porphyrin ring.

REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(iron; prepn. and catalytic epoxidn. of olefins by iron(V) oxo porphyrinato methoxy complexes)

IT **Epoxidation catalysts**

(prepn., characterization and catalytic epoxidn. of olefins by iron(V) oxo porphyrinato methoxy complexes)

L1 ANSWER 50 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:375704 HCAPLUS

DOCUMENT NUMBER: 129:141161

TITLE: Heterogeneous catalysis of the air oxidation of thiols by the cobalt porphyrin intercalated into a phosphatoantimonic acid host

AUTHOR(S): Hu, Ximing; Huang, Zhongtao; Gu, Guobang; Wang, Lefu; Chen, Biyun

CORPORATE SOURCE: Department of Applied Chemistry, South China University of Technology, Canton, 510641, Peop. Rep. China

SOURCE: Journal of Molecular Catalysis A: Chemical (1998), 132(2-3), 171-179

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cobalt porphyrin (TPPCo) has been prepared in situ as a guest mol. in the layered host material phosphatoantimonic acid, HSb(PO₄)₂, here denoted

SbP. The powder X-ray diffraction of the purified sample, the SbP-intercalated cobalt porphyrin (SbPTPPCo), showed the expanded interlamellar distance of SbP upon the intercalation. The electronic absorption and ESR spectra revealed the retention of cobalt porphyrin in the layered host material. The catalytic behavior of the novel catalyst SbPTPPCo for the thiol autoxidn. was investigated in quant. detail. In our exptl. conditions, the catalytic autoxidn. proceeded without induction period for oxygen consumption. The intercalated cobalt porphyrin appears to be a promising catalyst owing to its good catalytic capability. No loss in activity was obsd. for SbPTPPCo after eight reaction cycles and a total of more than 5390 turnovers. The proposed reaction scheme for the autoxidn. catalyzed by SbPTPPCo involves the formation of catalytic center of mononuclear complex by which the electron of RS- is transferred to bound and activated dioxygen.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Autoxidation catalysts**

Autoxidation kinetics

Intercalation

Oxidation catalysts

Oxidation kinetics

(heterogeneous catalysis of air oxidn. of thiols by cobalt porphyrin intercalated into phosphatoantimonic acid host)

IT **14172-90-8DP**, intercalation compd. with phosphatoantimonic acid

210536-75-7DP, intercalation compd. with cobalt tetraphenylporphyrin

RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic

preparation); PREP (Preparation); USES (Uses)

(heterogeneous catalysis of air oxidn. of thiols by cobalt porphyrin intercalated into phosphatoantimonic acid host)

L1 ANSWER 51 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:357064 HCAPLUS

DOCUMENT NUMBER: 129:95174

TITLE: Enhancement effect of Brij-35 on the hemin-catalyzed fluorogenic reaction between hydrogen peroxide and N,N'-bis(cyanomethyl)-o-phenylenediamine

AUTHOR(S): Zhu, Long; Chen, Cai; Li, Yuan-zong; Ci, Yun-xiang

CORPORATE SOURCE: Department of Chemistry, Peking University, Beijing, 100871, Peop. Rep. China

SOURCE: Analytica Chimica Acta (1998), 369(3), 205-213

CODEN: ACACAM; ISSN: 0003-2670

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The influence of various surfactants on the fluorogenic reaction of H₂O₂ oxidizing o-(NCCH₂NH)₂C₆H₄ catalyzed by hemin was systematically studied. The reaction rate and sensitivity were greater in the presence of some surfactants, esp. the non-ionic surfactant Brij-35 (6 times and >5 times greater than in its absence, resp.). Linear ranges for H₂O₂ covered 1.8 .times. 10⁻⁹ to 1.8 .times. 10⁻⁵ M, 3 orders of magnitude wider than the system in the absence of Brij-35. Moreover, Brij-35 changed the optimum pH of the reaction from 11 to 10.5, but there was little difference in the fluorogenic reaction over the wide pH range of 8.5-11.0. Light-scattering data proved that a change in the diam. of Brij-35 micelles was closely related to the activity change of hemin.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Fluorescence

Oxidation catalysts

Oxidation kinetics

Surfactants

(enhancement by Brij-35 of hemin-catalyzed fluorogenic reaction between hydrogen peroxide and bis(cyanomethyl)phenylenediamine)

IT 9002-92-0, Brij-35 **16009-13-5**, HeminRL: **CAT (Catalyst use)**; USES (Uses)

(enhancement by Brij-35 of hemin-catalyzed fluorogenic reaction between hydrogen peroxide and bis(cyanomethyl)phenylenediamine)

L1 ANSWER 52 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:335058 HCAPLUS

DOCUMENT NUMBER: 129:35710

TITLE: Monobridged porphyrin dimers and their metal complexes, procedure for their production and catalytic process using metal porphyrin complexes

INVENTOR(S): Teles, Joaquim Henrique; Berkessel, Albrecht; Frauenkron, Matthias

PATENT ASSIGNEE(S): BASF A.-G., Germany

SOURCE: Ger. Offen., 18 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19647640	A1	19980520	DE 1996-19647640	19961118
PRIORITY APPLN. INFO.:			DE 1996-19647640	19961118
OTHER SOURCE(S): CASREACT 129:35710; MARPAT 129:35710				

AB Prodn. of monobridged porphyrin dimers (I) (M = 2H; Ar = 2,4,6-trimethylphenyl, 2,6-dichlorophenyl, 2,6-dimethylphenyl) and catalytic process using their metal complexes I (M = transition metal) is reported. Thus, bis-(3-formylphenyl)methane, mesitaldehyde and pyrrole cyclocondense to give I (M = 2H, Ar = mesityl) which when complexed with ruthenium and oxidized with m-chloroperbenzoic acid acts as an excellent catalyst for oxidn. of norbornene to exo-2,3-epoxynorbornene.

IT **Oxidation catalysts**

(metalloporphyrin; prodn. of monobridged porphyrin dimers and catalytic process using their metal complexes)

IT **Metalloporphyrins****Metalloporphyrins**RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(transition metal; prodn. of monobridged porphyrin dimers and catalytic process using their metal complexes)

L1 ANSWER 53 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:327005 HCAPLUS

DOCUMENT NUMBER: 129:81414

TITLE: Study on the mechanism of cyclohexanone formation in cyclohexane hydroxylation catalyzed by metalloporphyrins

AUTHOR(S): Guo, Can-Cheng; Zhang, Xiao-Bing; Hou, Lian-Bo; Xu, Jian-Bing; Hao, Xu-Dong; Guo, Guang-Ming; Lang,

CORPORATE SOURCE: Ben-Xi; Chen, Xin-Bing
College of Chemistry and Chemical Engineering, Hunan University, Changsha, 410082, Peop. Rep. China

SOURCE: Huaxue Xuebao (1998), 56(5), 489-494
CODEN: HHHPA4; ISSN: 0567-7351

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The effects of both the constructions of metalloporphyrins and reaction conditions such as solvents, temp. and reaction time on the percentage contents of cyclohexanone in cyclohexane hydroxylation with PhIO catalyzed by monometalloporphyrins or bismetalloporphyrins and the reaction kinetics were studied systematically. Cyclohexanol oxidn. with PhIO catalyzed by the metalloporphyrins was compared with cyclohexane oxidn.

IT Hydroxylation
Hydroxylation catalysts
Hydroxylation kinetics
Oxidation
Oxidation catalysts
Oxidation kinetics
Solvent effect
Substituent effects
(study on the mechanism of cyclohexanone formation in cyclohexane hydroxylation catalyzed by metalloporphyrins)

IT **Metalloporphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(study on the mechanism of cyclohexanone formation in cyclohexane hydroxylation catalyzed by metalloporphyrins)

IT 11080-08-3 12582-61-5 12650-83-8 **16456-81-8** 19496-18-5
32195-55-4 36965-70-5 36995-20-7 37191-15-4 43145-44-4
51799-86-1 51909-25-2 51909-26-3 56811-40-6 60250-84-2
60250-86-4 62613-31-4 62769-24-8 64413-43-0 97330-51-3
119759-44-3 120494-83-9 122745-49-7 122745-50-0 151932-85-3
152249-56-4 152249-57-5 152249-58-6 152505-13-0 154089-44-8
154089-62-0 154089-63-1 154089-64-2 154089-66-4 154089-67-5
154089-68-6 154859-70-8 157742-63-7 157772-84-4
RL: **CAT (Catalyst use)**; USES (Uses)
(study on the mechanism of cyclohexanone formation in cyclohexane hydroxylation catalyzed by metalloporphyrins)

L1 ANSWER 54 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:322573 HCAPLUS

DOCUMENT NUMBER: 129:81626

TITLE: Micelle-bound metalloporphyrins as highly selective catalysts for the epoxidation of alkenes

AUTHOR(S): Monti, Donato; Tagliatesta, Pietro; Mancini, Giovanna; Boschi, Tristano

CORPORATE SOURCE: Dipartimento Scienze Technologies Chimiche, Universita Studi Roma, "Tor Vergata", Rome, I-00133, Italy

SOURCE: Angewandte Chemie, International Edition (1998), 37(8), 1131-1133
CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 129:81626

AB Epoxidn. of alkenes such as cyclooctene, cyclohexene, and 1-octene in the

presence of NaClO and imidazole (axial ligand) was catalyzed by metalloporphyrins in a micellar phase.

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Epoxidation

Epoxidation catalysts

Micelles

(epoxidn. of alkenes catalyzed by micelle-bound metalloporphyrins)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(epoxidn. of alkenes catalyzed by micelle-bound metalloporphyrins)

L1 ANSWER 55 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:242436 HCAPLUS

DOCUMENT NUMBER: 129:75537

TITLE: Studies of tailed metalloporphyrins(VIII). Synthesis and characterization of the benzimidazole-linked Mn(III) and Co(III) porphyrins and their catalysis on oxidation of cyclohexane by PhIO

AUTHOR(S): He, Hongshan; Huang, Jinwang; Lao, Cailing; Ji, Liangnian

CORPORATE SOURCE: Department of Chemistry, Zhongshan University, Canton, 510275, Peop. Rep. China

SOURCE: Zhongshan Daxue Xuebao, Ziran Kexueban (1997), 36(3), 6-11

CODEN: CHTHAJ; ISSN: 0529-6579

PUBLISHER: Zhongshan Daxue

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Eight new benzimidazole-linked Mn(III) and Co(II) porphyrin complexes were prepd. and characterized by elemental anal., FAB-MS, IR and UV-visible spectra. Their higher catalytic activities to the oxidn. of cyclohexane in the presence of PhIO under mild conditions indicated that the terminal groups play an important role in the catalysis. Their catalytic mechanism were briefly discussed.

IT **Oxidation catalysts**

(cobalt and manganese benzimidazole-linked porphyrin complexes for iodossylbenzene)

IT **Metalloporphyrins**

Metalloporphyrins

RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(transition metal; prepn. and IR spectra and catalysis in oxidn. of iodossylbenzene)

L1 ANSWER 56 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:200219 HCAPLUS

DOCUMENT NUMBER: 128:278257

TITLE: Pinch-porphyrins, new spectroscopic and kinetic models of peroxidases

AUTHOR(S): Reyes-Ortega, Yasmi; Alvarez-Toledano, Cecilio; Ramirez-Rosales, Daniel; Sanchez-Sandoval, Amparo; Gonzalez-Vergara, Enrique; Zamorano-Ulloa, Rafael

CORPORATE SOURCE: Centro Quimica Instituto Ciencias, Benemerita Universidad Autonoma Puebla, Mex.

SOURCE: Journal of the Chemical Society, Dalton Transactions:

Inorganic Chemistry (1998), (4), 667-674

CODEN: JCDBI; ISSN: 0300-9246

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB [1,9-Bis(2-pyridyl)-2,5,8-triazanonane]-(protoporphyrinato)iron(III) (4), -(mesoporphyrinato)iron(III) (5) and -(deuteroporphyrinato)iron(III) (6) were synthesized from the parent compds. chloro-(porphyrinato)iron(III) (1), -(mesoporphyrinato)iron(III) (2) and -(deuteroporphyrinato)iron(III) (3) and 1,9-bis(2-pyridyl)-2,5,8-triazanonane (picdien). The complexes 1-6 were characterized by UV/visible, ¹H NMR and ESR spectroscopies and their catalytic activity was detd. The measured theor. max. rate const. (kcat) for guaiacol + H₂O₂ .fwdarw. oxidn. guaiacol products (guaiacol = 2-methoxyphenol) in the presence of complexes 4-6, were 7.6 .times. 10⁶, 4.4 .times. 10⁵ and 9.0 .times. 10⁴ mol⁻¹ s⁻¹, resp. These peroxidase activities are to the authors' knowledge the largest reported for model complexes. The UV/visible spectra show Soret and Q bands for all compds. at energies typical of axially coordinated complexes with symmetry D_{4h} or lower. The intensity of the charge-transfer transitions indicates that the presence of the picdien ligand diminishes the distortion of the parent compds. The ¹H NMR spectra of complexes 4-6 are indicative of six-coordinated complexes with different degrees of quantum mixed-spin (qms) state S = 5/2 into S = 3/2. The ESR spectral features are characteristic of qms species, A and B, for each compd. Maltempo's theory for qms states gives the admixt. percentage of species A (53-64%) and species B (<8%) for each compd. The area ratio of the ESR B:A signals follows the same order as the peroxidase activity shown by these complexes. A clear correlation is established among the peroxidase activity, the Fe(III) out-of-porphyrin plane configuration and the qms state S = 5/2 and S = 3/2.

REFERENCE COUNT: 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Metalloporphyrins

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(iron; prepn. and catalytic activity of iron(III) pinch-porphyrin complexes in guaiacol peroxidn. kinetics as kinetic models of peroxidase)

IT Peroxidation catalysts

Peroxidation kinetics

(oxidn. kinetics of guaiacol with peroxide catalyzed by iron(III) pinch-porphyrin complexes as kinetic model for peroxidase)

L1 ANSWER 57 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:198727 HCAPLUS

DOCUMENT NUMBER: 128:321315

TITLE: Correlation between activity and structure of sterically hindered cobalt porphyrins-catalyzed oxidation of 2,6-di-tert- butylphenol

AUTHOR(S): Zheng, Weizhong; Wang, Xianyu; Zhang, Liangfu
CORPORATE SOURCE: Chengdu Institute of Organic Chemistry, Academia Sinica, Chengdu, 610041, Peop. Rep. China

SOURCE: Hecheng Huaxue (1997), 5(2), 115-119

CODEN: HEHUE2; ISSN: 1005-1511

PUBLISHER: Hecheng Huaxue Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The oxidn. of 2,6-di-tert-butylphenol catalyzed by sterically hindered Co porphyrins at 40.degree. was studied. With the substitution of Co porphyrins with electron withdrawing groups, the catalytic activity of catalysts was decreased in the following order: TPPCo(II) > TP-ClPPCo(II) > TO-ClPPCo (II) >> TDClPPCo (II):. [TPP = tetraphenylporphyrin, Tp-ClPP = tetra(4- chlorophenyl)porphyrin, To-ClPP = tetra(2- chlorophenyl)porphyrin, TDClPP = tetra(2,6-dichloro phenyl)porphyrin].

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Oxidation

Oxidation catalysts

Oxidation kinetics

(oxidn. of 2,6-di-tert-butylphenol catalyzed by sterically hindered Co porphyrins)

IT 14172-90-8 55915-17-8 97178-69-3 120882-91-9

RL: CAT (Catalyst use); USES (Uses)

(oxidn. of 2,6-di-tert-butylphenol catalyzed by sterically hindered Co porphyrins)

L1 ANSWER 58 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:164595 HCAPLUS

DOCUMENT NUMBER: 128:263776

TITLE: Novel reactivity of photoexcited iron porphyrins caged into a polyfluorosulfonated membrane in catalytic hydrocarbon oxygenation

AUTHOR(S): Maldotti, A.; Molinari, A.; Andreotti, L.; Fogagnolo, M.; Amadelli, R.

CORPORATE SOURCE: Dip. Chim., Cent. Studio Fotoreattivita Catalisi CNR, Univ. Studi Ferrara, Ferrara, 44100, Italy

SOURCE: Chemical Communications (Cambridge) (1998), (4), 507-508

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Heterogenization of iron porphyrins inside Nafion creates new photocatalytic systems which can be used to oxidize cyclohexene and cyclohexane with sunlight and O2 under mild conditions (room temp., atm. pressure); the polymeric matrix makes the iron porphyrin a good photocatalyst for the monooxygenation of the substrate and increases both its photocatalytic efficiency (about ten times) and its stability (turnover values >1000).

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: CAT (Catalyst use); USES (Uses)

(iron; photocatalytic oxidn. of cyclohexene and cyclohexane using catalyst system consisting of iron porphyrins caged in Nafion)

IT **Oxidation catalysts**

(photooxidn.; photocatalytic oxidn. of cyclohexene and cyclohexane using catalyst system consisting of iron porphyrins caged in Nafion)

L1 ANSWER 59 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:102856 HCAPLUS

DOCUMENT NUMBER: 128:153999

TITLE: Catalytic oxygenation of hydrocarbons by metalloporphyrin and metallosalen complexes

INVENTOR(S): Groves, John T.; Carofiglio, Tommaso; Bonchio, Marcella; Sauve, Anthony
 PATENT ASSIGNEE(S): Princeton University, USA; Groves, John T.; Carofiglio, Tommaso; Bonchio, Marcella; Sauve, Anthony
 SOURCE: PCT Int. Appl., 48 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9804538	A1	19980205	WO 1997-US13111	19970725
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 6002026	A	19991214	US 1996-760849	19961205
AU 9738139	A1	19980220	AU 1997-38139	19970725
PRIORITY APPLN. INFO.:			US 1996-686663	19960726
			US 1996-760849	19961205
			WO 1997-US13111	19970725

OTHER SOURCE(S): MARPAT 128:153999

AB The present invention relates to novel oxidative processes for substrates such as olefins, alkanes, aroms., and alcs. using metallic porphyrin or salen catalytic complexes which have been specifically designed to maximize catalytic activity. Coordination complexes, particularly porphyrins and salens having nitrosyl axial ligands and electron-withdrawing peripheral substituents, are preferred.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Oxidation catalysts**
 (catalytic oxygenation of hydrocarbons by metalloporphyrin and metallosalen complexes)

IT **Metalloporphyrins**
Metalloporphyrins
 RL: **CAT (Catalyst use)**; USES (Uses)
 (transition metal; catalytic oxygenation of hydrocarbons by metalloporphyrin and metallosalen complexes)

L1 ANSWER 60 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1998:93389 HCAPLUS
 DOCUMENT NUMBER: 128:180083
 TITLE: Rapid catalytic oxygenation of hydrocarbons with perhalogenated ruthenium porphyrin complexes
 AUTHOR(S): Groves, John T.; Shalyaev, Kirill V.; Bonchio, Marcella; Carofiglio, Tommaso
 CORPORATE SOURCE: Department of Chemistry, Princeton University, Princeton, NJ, 08544, USA
 SOURCE: Studies in Surface Science and Catalysis (1997), 110(3rd World Congress on Oxidation Catalysis, 1997), 865-872

CODEN: SSCTDM; ISSN: 0167-2991
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Conference proceedings. Perhalogenated ruthenium porphyrins were found to be efficient catalysts for the oxygenation of hydrocarbons including secondary alkanes and benzene in the presence of 2,6-dichloropyridine N-oxide under mild conditions in aprotic media. Up to 15,000 turnovers and rates of 800 TO/min were obtained. A mechanism where Ru(III) - Ru(V) intermediates play an important role is proposed and discussed.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Epoxidation

Epoxidation catalysts

Epoxidation kinetics

Hydroxylation

Hydroxylation catalysts

Hydroxylation kinetics

Oxidation

Oxidation catalysts

Oxidation kinetics

(rapid catalytic oxygenation of hydrocarbons with perhalogenated ruthenium porphyrin complexes)

IT **Metalloporphyrins**

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(ruthenium porphyrin complexes; rapid catalytic oxygenation of hydrocarbons with perhalogenated ruthenium porphyrin complexes)

L1 ANSWER 61 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:85146 HCAPLUS

DOCUMENT NUMBER: 128:229978

TITLE: Paramagnetic 1H-NMR relaxation probes of stereoselectivity in metalloporphyrin catalyzed olefin epoxidation

AUTHOR(S): Groves, John T.; Crowley, Stephen J.; Shalyaev, Kirill V.

CORPORATE SOURCE: Department of Chemistry, Princeton University, Princeton, NJ, 08544, USA

SOURCE: Chirality (1998), 10(1/2), 106-119
CODEN: CHRLEP; ISSN: 0899-0042

PUBLISHER: Wiley-Liss, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Enantioselective catalytic epoxidn. of olefins is an important problem from both practical and mechanistic points of view. The origins of chiral induction by asym. porphyrin and salen complexes were investigated by FT-NMR T1 relaxation techniques. A new chiral vaulted porphyrin (1 = I) that carries (S)-binaphthyl-L-alanine straps across both faces of the porphyrin macrocycle was synthesized and characterized. (R)-styrene oxide was obtained in >90% ee in the initial stages of styrene epoxidn. with F5PhIO catalyzed by 1-Fe(III)Cl. The transition state for olefin epoxidn. with high-valent metal-oxo species was modeled by coordinating epoxides to paramagnetic copper complexes of the corresponding ligands. The epoxide enantiomer that better fit the chiral cavity of the catalyst, as revealed by T1 relaxation measurements, was also the major product of catalytic

olefin epoxidn. These results are consistent with the "lock-and-key" mechanism of asym. catalysis by metalloporphyrins. The copper complex of a chiral salen ligand showed no differentiation in terms of T1 relaxation rates between the enantiomers of cis-.beta.-methylstyrene oxide in contrast to the high enantioselectivity obsd. for catalytic epoxidn. The authors issue a safety warning on the use of pentafluoriodosylbenzene because it can spontaneously detonate.

REFERENCE COUNT: 77 THERE ARE 77 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(copper porphyrin complexes, transition state models; paramagnetic 1H-NMR relaxation probes of stereoselectivity in metalloporphyrin catalyzed olefin epoxidn.)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(iron; paramagnetic 1H-NMR relaxation probes of stereoselectivity in metalloporphyrin catalyzed olefin epoxidn.)

IT **Epoxidation**

Epoxidation catalysts

(stereoselective; paramagnetic 1H-NMR relaxation probes of stereoselectivity in metalloporphyrin catalyzed olefin epoxidn.)

L1 ANSWER 62 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:57369 HCAPLUS

DOCUMENT NUMBER: 128:141011

TITLE: The preparation of a metalloporphyrin-peptide conjugate artificial protein for the catalytic oxidation of alkenes

AUTHOR(S): Geier, George Richard

CORPORATE SOURCE: Univ. of Washington, Seattle, WA, USA

SOURCE: (1997) 217 pp. Avail.: UMI, Order No. DA9806974
From: Diss. Abstr. Int., B 1998, 58(8), 4222

DOCUMENT TYPE: Dissertation

LANGUAGE: English

AB Unavailable

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(peptide conjugates; prepn. of metalloporphyrin-peptide conjugate as artificial protein catalyst for oxidn. of alkenes)

IT **Oxidation catalysts**

(prepn. of metalloporphyrin-peptide conjugate as artificial protein catalyst for oxidn. of alkenes)

L1 ANSWER 63 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:798545 HCAPLUS

DOCUMENT NUMBER: 127:358570

TITLE: Oxidation of methane to methanol by hydrogen peroxide on a supported hematin catalyst

AUTHOR(S): Nagiev, T. M.; Abbasova, M. T.

CORPORATE SOURCE: Inst. Teor.probl. Khim. Tekhnol., Baku, Azerbaijan

SOURCE: Zhurnal Fizicheskoi Khimii (1997), 71(7), 1220-1224
CODEN: ZFKHA9; ISSN: 0044-4537

PUBLISHER: MAIK Nauka

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The title monooxygenase reaction was studied as a model for Cytochrome P 450 at low temps. and atm. pressure. Fe³⁺ protoporphyrin supported on an Al Mg silicate was the most active of the catalysts studied. This catalyst was most active during its first 30 min of use; it underwent complete deactivation within 5 h.

IT Oxidation

Oxidation catalysts

Oxidation kinetics

(methane oxidn. to methanol by hydrogen peroxide on supported hematin catalyst)

IT 1327-43-1, Aluminum magnesium silicate **15489-90-4**, Hematin

RL: **CAT (Catalyst use)**; USES (Uses)

(methane oxidn. to methanol by hydrogen peroxide on supported hematin catalyst)

L1 ANSWER 64 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:663318 HCAPLUS

DOCUMENT NUMBER: 127:331087

TITLE: Aerobic oxidation of cyclohexane catalyzed by Fe(III) (5,10,15,20-tetrakis(pentafluorophenyl)porphyrin)Cl in sub- and super-critical CO₂

AUTHOR(S): Wu, Xiao-Wen; Oshima, Yoshito; Koda, Seiichiro

CORPORATE SOURCE: Department of Chemical System Engineering, School of Engineering, The University of Tokyo, Hongo, 113, Japan

SOURCE: Chemistry Letters (1997), (10), 1045-1046

CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Chemical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Aerobic oxidn. of cyclohexane to yield cyclohexanol and cyclohexanone in the presence of a Fe-porphyrin catalyst bearing meso-pentafluorophenyl group and acetaldehyde has been efficiently enhanced in pressurized CO₂. The reaction rate takes a max. value in the neighborhood of crit. pressure.

IT Autoxidation

Autoxidation catalysts

Autoxidation kinetics

Supercritical fluids

Supercritical phenomena

(aerobic oxidn. of cyclohexane catalyzed by Fe(III) (5,10,15,20-tetrakis(pentafluorophenyl)porphyrin)Cl in sub- and supercrit. CO₂)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(aerobic oxidn. of cyclohexane catalyzed by Fe(III) (5,10,15,20-tetrakis(pentafluorophenyl)porphyrin)Cl in sub- and supercrit. CO₂)

L1 ANSWER 65 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:624433 HCAPLUS

DOCUMENT NUMBER: 127:292684

TITLE: Oxidation of cyclohexene catalyzed by Pd(OAc)₂/FePc for the synthesis of cyclohexanone

AUTHOR(S): Li, Huaming; Ye, Xinghakai; Wu, Yue

CORPORATE SOURCE: Chinese Academy Sciences, Changchun Inst. Applied Chemistry, Changchun, 130022, Peop. Rep. China

SOURCE: Fenzi Cuihua (1997), 11(4), 258-262

CODEN: FECUEN; ISSN: 1001-3555
PUBLISHER: Zhongguo Kexueyuan Lanzhou Huaxue Wuli Yanjiuso
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Catalytic activities of several catalysts consisted of Pd(OAc)₂ with different Fe-Macrocyclic compds. for the oxidn. of cyclohexene to cyclohexanone in an acidic aq. soln. of MeCN were investigated. The exptl. results indicated that, the catalytic activity of Pd(OAc)₂ with FePc was the highest among the catalysts examd. The order of activities was Pd(OAc)₂/FePc > Pd(OAc)₂/FeTPPCL > Pd(OAc)₂/Fe-poly Pc. It is suggested that the mechanism of oxidn. of cyclohexene to cyclohexanone catalyzed by Pd(OAc)₂/FePc in an acidic aq. soln. of MeCN was similar to that of Wacker catalyst system and FePc catalytically regenerated the active catalyst in the process.

IT **Oxidation catalysts**

(oxidn. of cyclohexene catalyzed by Pd(OAc)₂/FePc for the synthesis of cyclohexanone)

IT 132-16-1P, Iron phthalocyanine **16456-81-8P** 36344-64-6P
53909-58-3P

RL: **CAT (Catalyst use)**; RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(oxidn. of cyclohexene catalyzed by Pd(OAc)₂/FePc for the synthesis of cyclohexanone)

L1 ANSWER 66 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:576416 HCAPLUS

DOCUMENT NUMBER: 127:234118

TITLE: Influence of magnetic field on the biocatalytic properties of iron porphyrin

AUTHOR(S): Guo, Can-Cheng; Hao, Xu-Dong; Zhang, Xiao-Bing; Liang, Ben-Xi; Chen, Xin-Bin

CORPORATE SOURCE: Dep. Chem. and Chemical Eng., Hunan Univ., Changsha, 410082, Peop. Rep. China

SOURCE: Gaodeng Xuexiao Huaxue Xuebao (1997), 18(6), 906-907
CODEN: KTHPDM; ISSN: 0251-0790

PUBLISHER: Gaodeng Jiaoyu Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Monometalloporphyrin and .mu.-oxo-bismetalloporyrin compds. of metal iron, manganese and cobalt were synthesized, and used as the model compds. of cytochrome P 450 monooxygenase in catalytic oxidn. of cyclohexane with iodosobenzene. The influence of the addn. of magnetic field on the catalytic properties of these metalloporphyrins was studied. The studies reveal that the influence of the addn. of magnetic field on the catalytic behavior of other metalloporphyrins does not go beyond 37% except monoironporphyrin. But the addn. of magnetic field makes the reaction yield of cyclohexane oxidn. catalyzed by monoironporphyrin increase to 53%, and makes the rate of reaction be twice as much. This fact means that the catalytic processes of cytochrome P 450 monooxygenase in human bodies may be bound up with earth magnetic field closely. This discovery has singular meaning to unlock the mystery of biosphere consisting of human and earth.

IT Magnetic field

Oxidation

Oxidation catalysts

(influence of magnetic field on biocatalytic properties of iron porphyrin)

IT **Metalloporphyrins**RL: **CAT (Catalyst use)**; USES (Uses)

(influence of magnetic field on biocatalytic properties of iron porphyrin)

IT **14172-90-8 16456-81-8**, Iron, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]-, (SP-5-12)- 34557-72-7 37191-15-4 154089-63-1, Manganese, .mu.-oxobis[5,10,15,20-tetrakis(4-chlorophenyl)-21H,23H-porphinato(2-)-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]di-\

RL: **CAT (Catalyst use)**; USES (Uses)

(influence of magnetic field on biocatalytic properties of iron porphyrin)

L1 ANSWER 67 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:559915 HCAPLUS

DOCUMENT NUMBER: 127:262369

TITLE: Manganese-porphyrins and -azaporphyrins as catalysts in alkene epoxidations with peracetic acid. Part 2. Kinetics and mechanism

AUTHOR(S): Banfi, Stefano; Cavazzini, Marco; Coppa, Fausta; Barkanova, Svetlana V.; Kaliya, Oleg L.

CORPORATE SOURCE: Centro CNR Studio per la Sintesi e Stereochimica di Speciali Sistemi Organici, Milan, 20135, Italy

SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1997), (8), 1577-1583
CODEN: JCPKBH; ISSN: 0300-9580

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cis-Stilbene (cSt) and 1,1-diphenyl-2-picrylhydrazine (DPPH) were used as substrates for kinetic investigations of the catalytic system based on MnIII-porphyrins and peracetic acid in CH₃CN. Catalysts employed were [tetra(2,6-dichlorophenyl)porphyrinato]manganese chloride (TDCPPMnCl), (octanitrophthalocyaninato)manganese chloride (NO₂PcMnCl, 6) and [tetra(tert-butyl)tetraazaporphyrinato]manganese chloride (TAPMnCl). It was found that for all these catalysts the first step of the reaction mechanism is the formation of an adduct "A" between the catalyst and AcOOH in a reversible way (k₁/k₋₁), followed by an irreversible stage (k₂) for the formation of MnV-oxo species. The oxidative capability of the adduct "A" was found to be dependent on the electronic structure of the catalyst, while the reactivity of Mn-oxo species is only slightly influenced by catalyst structure. The formation of the high-valent Mn-oxo species is the rate-detg. step of alkene epoxidns. as demonstrated by the same k₂ value obtained with catalyst 6 in the epoxidn. of cSt and trans-stilbene (tSt). Catalyst stability was found to be dependent on solvent polarity, CH₃CN being the best reaction medium.

IT **Oxidation catalysts**

(for diphenylpicrylhydrazine; kinetics and mechanism of manganese-porphyrin- and -azaporphyrin-catalyzed alkene epoxidn. with peracetic acid)

IT **Complexation**

Epoxidation

Epoxidation catalysts

Epoxidation kinetics

(kinetics and mechanism of manganese-porphyrin- and -azaporphyrin-catalyzed alkene epoxidn. with peracetic acid)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use); USES (Uses)**
 (manganese porphyrin complexes; kinetics and mechanism of
 manganese-porphyrin- and -azaporphyrin-catalyzed alkene epoxidn. with
 peracetic acid)

L1 ANSWER 68 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1997:483056 HCAPLUS
 DOCUMENT NUMBER: 127:108768
 TITLE: Preparation of p-benzoquinones by oxidation of phenols.
 INVENTOR(S): Chiba, Koji; Fukuoka, Naohiko
 PATENT ASSIGNEE(S): Chemipro Kasei K. K., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09176082	A2	19970708	JP 1995-350930	19951225
PRIORITY APPLN. INFO.:			JP 1995-350930	19951225
OTHER SOURCE(S): MARPAT 127:108768				
AB P-Benzoquinones I [R1-R4 = H, (substituted) alkyl, alkoxy, alkylsulfonyl, aryl, aryloxy, arylsulfonyl, aralkyl, OH, halo], useful as intermediates for pharmaceuticals, are prepd. by oxidn. of phenols in the presence of metal porphyrin complexes. 2,3,6-Trimethylphenol 6.30 mmol was oxidized by 30 wt.% aq. H2O2 (3 mL) in 80% AcOH in the presence of hematin (0.08 mmol) at 4.degree. to 40.degree. for 15 min to give trimethyl-p-benzoquinone in 87.9% yield.				
IT Oxidation catalysts (prepn. of benzoquinones by oxidn. of phenols with porphyrin complex catalysts)				
IT 7439-89-6D, Iron, porphyrin complexes, uses 7439-96-5D, Manganese, porphyrin complexes, uses 7440-02-0D, Nickel, porphyrin complexes, uses 7440-47-3D, Chromium, porphyrin complexes, uses 15489-90-4, Hematin				
RL: CAT (Catalyst use); USES (Uses) (prepn. of benzoquinones by oxidn. of phenols with porphyrin complex catalysts)				

L1 ANSWER 69 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1997:440256 HCAPLUS
 DOCUMENT NUMBER: 127:121428
 TITLE: Origin of the Oxygen Atom in C-H Bond Oxidations Catalyzed by a Water-Soluble Metalloporphyrin
 AUTHOR(S): Balahura, Robert J.; Sorokin, Alexander; Bernadou, Jean; Meunier, Bernard
 CORPORATE SOURCE: Chemistry Department, University of Guelph, Ontario, ON, N1G 2W1, Can.
 SOURCE: Inorganic Chemistry (1997), 36(16), 3488-3492
 CODEN: INOCAJ; ISSN: 0020-1669
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 127:121428
 AB The monopersulfate oxidn. of 4-isopropylbenzoic acid performed in H2180

and catalyzed by a water-sol. metalloporphyrin indicated that half of the oxygen atoms incorporated in 4-(1-hydroxy-1-methylethyl)benzoic acid, the primary hydroxylation product, came from water. A redox tautomerism of the active high-valent hydroxo-metal-oxo porphyrin intermediate coupled with an oxygen rebound mechanism explained this result. Under similar conditions, ketoprofen was directly oxidized to 3-benzoylacetophenone, via at least two different reaction pathways. Trapping of radical intermediates by mol. oxygen competed with the oxygen rebound mechanism.

IT Decarboxylation
Hydroxylation
Hydroxylation catalysts
Oxidation

Oxidation catalysts

(origin of oxygen atom in C-H bond oxidns. catalyzed by water-sol. metalloporphyrin)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(water-sol.; origin of oxygen atom in C-H bond oxidns. catalyzed by water-sol. metalloporphyrin)

L1 ANSWER 70 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:418952 HCAPLUS

DOCUMENT NUMBER: 127:144265

TITLE: O2-oxidations catalyzed by trans-dioxoporphyrinatoruthenium(VI) species (ruthenium, porphyrins, oxygen)

AUTHOR(S): Cheng, Stephen Yau Sang

CORPORATE SOURCE: Univ. of British Columbia, Vancouver, BC, Can.

SOURCE: (1996) 347 pp. Avail.: UMI, Order No. DANN14734
From: Diss. Abstr. Int., B 1997, 58(1), 194

DOCUMENT TYPE: Dissertation

LANGUAGE: English

AB Unavailable

IT Oxidation

Oxidation catalysts

(O2-oxidns. catalyzed by trans-dioxoporphyrinatoruthenium(VI) species)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(ruthenium porphyrin complexes; O2-oxidns. catalyzed by trans-dioxoporphyrinatoruthenium(VI) species)

L1 ANSWER 71 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:407384 HCAPLUS

DOCUMENT NUMBER: 127:95128

TITLE: Synthesis and catalytic epoxidation activity of terpene-derived D4-symmetric metalloporphyrins

AUTHOR(S): Barry, John F.; Campbell, Lara; Smith, Dudley W.; Kodadek, Thomas

CORPORATE SOURCE: Dep. Chem. Biochem., Univ. Texas Austin, Austin, TX, 78712, USA

SOURCE: Tetrahedron (1997), 53(23), 7753-7776
CODEN: TETRAB; ISSN: 0040-4020

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 127:95128

AB The authors report on a flexible synthesis of chiral, D4-sym. porphyrins from cyclic ketone starting materials. Two porphyrins (I) (M = 2H, R = H, Me) have been synthesized from the terpene 1-R-(+)-nopinone, obviating the need to perform a resoln. The chloromanganese deriv. I (M = Mn-Cl, R = H) is a good catalyst for the epoxidn. of terminal alkenes, providing epoxides with e.e.'s of 70% with high turnover nos. A predictive model for oxygen atom transfer in the chiral pocket is discussed.

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(D4-sym.; synthesis and catalytic epoxidn. activity of terpene-derived D4-sym. metalloporphyrins)

IT **Epoxidation catalysts**

(stereoselective; synthesis and catalytic epoxidn. activity of terpene-derived D4-sym. metalloporphyrins)

L1 ANSWER 72 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:371494 HCAPLUS

DOCUMENT NUMBER: 127:100346

TITLE: Supported metalloporphyrins catalyze the oxidation of isobutane by dioxygen

AUTHOR(S): Nenoff, Tina M.; Showalter, Margaret C.; Salaz, Kenneth A.

CORPORATE SOURCE: Sandia National Laboratories, Advanced Energy Technology Center, PO Box 5800, MS 0709, Albuquerque, NM, 87185-0709, USA

SOURCE: Journal of Molecular Catalysis A: Chemical (1997), 121(2-3), 123-129

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Metalloporphyrins supported on silica were tested as catalysts for the oxidn. of isobutane by dioxygen. Iron meso-tetra(pentafluorophenyl)porphyrin (FeF20TPP) supported on aminopropyl-functionalized silica was catalytically active (700 turnovers), but degraded quickly. Catalysts prepd. by the adsorption of iron or manganese meso-tetra(4-N-methylpyridyl)porphyrin (MTNMePyP, where M = Mn or Fe) on silica were more stable under oxidizing conditions. The Mn catalyst was very active (2800 turnovers), but the activity of the Fe catalyst was much lower (100 turnovers).

IT **Oxidation catalysts**

(supported metalloporphyrins catalysts for oxidn. of isobutane by dioxygen)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(supported metalloporphyrins catalysts for oxidn. of isobutane by dioxygen)

L1 ANSWER 73 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:358261 HCAPLUS

DOCUMENT NUMBER: 127:127829

TITLE: Electrocatalytic oxidation of alkenes by water-soluble manganese porphyrins in aqueous media: a comparison of the reaction products at different oxidation states

AUTHOR(S): Liu, Mao-huang; Su, Y. Oliver

CORPORATE SOURCE: Department of Chemistry, National Taiwan University,
Taipei, Taiwan

SOURCE: Journal of Electroanalytical Chemistry (1997),
426(1-2), 197-203
CODEN: JECHES; ISSN: 0368-1874

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Manganese(III) tetrakis(N-methyl-4-pyridyl)porphine (MnTMPyP) is water-sol. and exhibits a reversible MnIII/II redox couple in acidic solns. However, the MnIV/III couple cannot be seen by cyclic voltammetry in aq. solns. of pH<8. Spectroelectrochem. methods showed that (H₂O)MnIIITMPyP undergoes a 1-electron oxidn. with slow heterogeneous electron transfer rate to form O:MnIVTMPyP, which then oxidizes cyclopent-2-ene-1-acetic acid (1) catalytically to give cyclopent-2-ene-4-one-1-acetic acid (2). Further electrochem. oxidn. of O:MnIVTMPyP causes the deactivation of the catalyst, presumably due to porphine ring degradn. A sterically hindered porphyrin, manganese(III) tetrakis(sulfonatomesityl)porphine (MnTSMP), is 1st oxidized at the porphine ring and is stable as a radical cation (H₂O)MnIIITSMP^{•+} in pH<2 solns. In pH 8.5 buffer solns., MnIIITSMP is oxidized totally by two electrons at E_{appl} = +1.05 V. The electrogenerated O:MnIVTSMP^{•+} reacts rapidly with 1 to give 2 and cyclopent-2,3-diol-1-acetic acid. The reaction mechanisms are proposed.

IT **Oxidation catalysts**

(electrochem.; manganese porphyrins for cyclopenteneacetic acid)

IT **Metalloporphyrins**

RL: CAT (Catalyst use); PRP (Properties); RCT (Reactant); RACT
(Reactant or reagent); USES (Uses)

(manganese porphyrin complexes; electrocatalytic oxidn. of alkenes by water-sol. manganese porphyrins in aq. media: comparison of reaction products at different oxidn. states)

L1 ANSWER 74 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:343820 HCAPLUS

DOCUMENT NUMBER: 127:65992

TITLE: Enhancement of catalytic efficiency of
metalloporphyrin-reductant-molecular oxygen biomimetic
system by amino acid external ligands

AUTHOR(S): Borovkov, Victor V.; Solovieva, Anna B.;
Cheremenskaya, Olga V.; Belkina, Natalia V.

CORPORATE SOURCE: National Institute for Resources and Environment
(NIRE), 16-3 Onogawa, Tsukuba-shi, Ibaraki, 305, Japan

SOURCE: Journal of Molecular Catalysis A: Chemical (1997),
120(1-3), L1-L4

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The presence of amino acid external ligands (Cys and His) markedly increases the efficiency (in terms of reaction rate const. and turnover no.) of the metalloporphyrin-reductant-mol. oxygen catalytic system in cholesterol oxidn. reactions; in so doing, Cys contained systems are more active co-catalysts showing a pronounced max. of concn. dependence profiles.

IT **Oxidation catalysts**

Oxidation kinetics

(cholesterol oxidn. with metalloporphyrin/amino acid cocatalysts)

IT **Metalloporphyrins**
 RL: **CAT (Catalyst use)**; USES (Uses)
 (cholesterol oxidn. with metalloporphyrin/amino acid cocatalysts)

IT 52-90-4, Cysteine, uses 71-00-1, Histidine, uses **14875-96-8**
 16591-56-3 21393-64-6 31004-82-7
 RL: **CAT (Catalyst use)**; USES (Uses)
 (cholesterol oxidn. with metalloporphyrin/amino acid cocatalysts)

L1 ANSWER 75 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1997:333682 HCAPLUS
 DOCUMENT NUMBER: 127:65383
 TITLE: Porphyrin-catalyzed oxidation of trichlorophenol
 AUTHOR(S): Hasan, Saleem; Sublette, Kerry L.
 CORPORATE SOURCE: Center for Environmental Research and Technology,
 University of Tulsa, Tulsa, OK, 74104, USA
 SOURCE: Applied Biochemistry and Biotechnology (1997), 63-65,
 845-854
 CODEN: ABIBDL; ISSN: 0273-2289
 PUBLISHER: Humana
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Porphyrin-metal complexes are potentially useful to catalyze redox reactions, which convert toxic and biol. recalcitrant compds. to compds. that are less toxic and more amendable to biotreatment. Porphyrins, in the absence of proteins as in ligninases, peroxidases, and oxidases, are potentially more robust than enzymes and microbial cultures in the treatment of inhibitory substances. 2,4,6-Trichlorophenol was used as a model compd. for chlorinated phenols and as a substrate for various porphyrin-metal complexes acting as oxidn. catalysts. T-Bu hydroperoxide was the oxidizing agent. TCP was shown to be at least partially dechlorinated and the arom. ring broken in reaction products. All porphyrins exhibited satn. kinetics with regard to the initial TCP concns. in reaction mixts. Electron-withdrawing substituents on the porphyrins were obsd. to increase stability of the catalysts to inactivating ring-centered oxidn.

IT **Metalloporphyrins**
 RL: **CAT (Catalyst use)**; USES (Uses)
 (iron; porphyrin-catalyzed oxidn. of trichlorophenol)

IT Oxidation
Oxidation catalysts
 Oxidation kinetics
 (porphyrin-catalyzed oxidn. of trichlorophenol)

L1 ANSWER 76 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1997:260574 HCAPLUS
 DOCUMENT NUMBER: 126:293487
 TITLE: Epoxidation of 3.beta.-acetoxycholest-5-ene with cumene hydroperoxide catalyzed by 5,10,15,20-tetraarylporphyrinatoiron(III) chlorides
 AUTHOR(S): Chauhan, S. M. S.; Ray, P. C.; Azam, M. Mohibb E.; Parkash, Som; Sharma, T. K.
 CORPORATE SOURCE: Department Chemistry, University Delhi, Delhi, 110 007, India
 SOURCE: Journal of the Indian Chemical Society (1997), 74(3), 199-201
 CODEN: JICSAH; ISSN: 0019-4522

PUBLISHER: Indian Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The reaction of 3.beta.-acetoxycholest-5-ene with cumene hydroperoxide catalyzed by electron-withdrawing and perchlorinated 5,10,15,20-tetraarylporphyrinatoiron(III) chlorides form 3.beta.-acetox-5.alpha.,6.alpha.-epoxycholestane, 3.beta.-acetox-5.beta.,6.beta.-epoxycholestane, 3.beta.-acetox-7.alpha.-hydroxcholest-5-ene, 3.beta.-acetox-7.beta.-hydroxcholest-5-ene and 3.beta.-acetox-7-oxocholest-5-ene in different yields depending on the reaction conditions. The higher yields of 5.beta.,6.beta.-epoxides have been obtained with 2,3,7,8,12,13,17,18-octachloro-5,10,15,20-tetraarylporphyrinatoiron(III) chloride as catalyst than the corresponding 5,10,15,20-tetraarylporphyrinatoiron(III) chlorides.

IT Epoxidation

Epoxidation catalysts

(epoxidn. of acetoxycholestene with cumene hydroperoxide catalyzed by tetraarylporphyrinatoiron(III) chlorides)

IT **16456-81-8**, Tetraphenylporphyrin iron(III) chloride 77439-21-5
91042-27-2 120676-09-7 120676-10-0

RL: **CAT (Catalyst use)**; USES (Uses)

(epoxidn. of acetoxycholestene with cumene hydroperoxide catalyzed by tetraarylporphyrinatoiron(III) chlorides)

L1 ANSWER 77 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:260505 HCAPLUS

DOCUMENT NUMBER: 126:350786

TITLE: Synthesis and catalytic performance of hydrophobic metalloporphyrins

AUTHOR(S): Yu, Xiao-Qi; You, Jing-Song; Li, Ying; Xiao, You-Fa; Lan, Zhong-Wei

CORPORATE SOURCE: Dep. Chem., Sichuan Union Univ., Chengdu, 610064, Peop. Rep. China

SOURCE: Youji Huaxue (1997), 17(2), 153-158
CODEN: YCHHDX; ISSN: 0253-2786

PUBLISHER: Kexue

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB ML (M = Co, Cu, Mn, Ni; H2L = tetrakis(4-(R-substituted)oxyphenyl)porphyrin (R = Me, C8H17, C12H25, C16H33)) with hydrophobic long chain alkyl groups were prepd. and their catalytic performance in the epoxidn. of styrene in CH2Cl2/H2O type-phase system was studied. The results of epoxidn. of styrene showed that the pH value of the aq. phase plays an important role in the epoxidn.; the influence of hydrophobicity of metalloporphyrins on the catalytic reaction is very small and the order of catalytic activity of hydrophobic metalloporphyrins is Mn > Co > Ni > Cu.

IT **Epoxidation catalysts**

(transition metal alkoxyphenylporphyrin complexes for styrene)

IT **Metalloporphyrins**

Metalloporphyrins

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(transition metal; prepn. and catalysis in styrene epoxidn.)

L1 ANSWER 78 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:252004 HCAPLUS

DOCUMENT NUMBER: 126:330342

TITLE: Catalytic activities of Al(III)-, Ga(III)-, In(III)- and Tl(III)-porphyrin complexes
AUTHOR(S): Park, Yu Chul; Na, Hun Gil
CORPORATE SOURCE: Department of Chemistry, Kyungpook National University, Taegue, 702-701, S. Korea
SOURCE: Main Group Metal Chemistry (1997), 20(4), 269-276
CODEN: MGMCE8; ISSN: 0792-1241
PUBLISHER: Freund
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The catalytic oxidns. of several olefins in CH₂Cl₂ have been investigated using non-redox metalloporphyrin [M = Al(III), Ga(III), In(III), Tl(III)] complexes as catalyst and sodium hypochlorite as terminal oxidant. Porphyrins were (p-CH₃O)TPP, (p-CH₃)TPP, TPP, (p-F)TPP, (p-Cl)TPP and (F₂O)TPP (TPP = tetraphenylporphyrin), and olefins were (p-CH₃O)-, (p-CH₃)-, (p-H)-, (p-F)-, (p-Cl)- and (p-Br)styrene and cyclopentene and cyclohexene. The conversion yield of substrate by changing the substituent of TPP increased in the order of p-CH₃O < p-CH₃ < H < p-F < p-Cl, which was consistent with the sequence of 4.sigma. values of TPP. But the substituent effect of substrate on the conversion yield decreased with increasing the .sigma.+ values on substrates in the order of p-CH₃O > p-CH₃ > H > p-Cl > p-Br. For the oxidn. of these olefins, the catalytic activities of In(III)- and Tl(III)-porphyrins were significantly higher than those of Al(III)- and Ga(III)-porphyrins.

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(main-group; substrate and catalyst substituent effects in the oxidn. of alkenes with main-group Al(III)-, Ga(III)-, In(III)- and Tl(III)-porphyrin complexes)

IT **Oxidation catalysts**

Reaction constant
Steric effects
(substrate and catalyst substituent effects in the oxidn. of alkenes with main-group Al(III)-, Ga(III)-, In(III)- and Tl(III)-porphyrin complexes)

L1 ANSWER 79 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1997:250676 HCAPLUS
DOCUMENT NUMBER: 126:239842
TITLE: Epoxidation of oleic acid in the presence of benzaldehyde using cobalt(II) tetraphenylporphyrin as catalyst
AUTHOR(S): Chou, Tse-Chuan; Lee, Shan-Van
CORPORATE SOURCE: Department of Chemical Engineering, National Cheng Kung University, Tainan, 701, Taiwan
SOURCE: Industrial & Engineering Chemistry Research (1997), 36(5), 1485-1490
CODEN: IECRED; ISSN: 0888-5885
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Epoxidn. of oleic acid with oxygen in the presence of benzaldehyde using cobalt(II) tetraphenylporphyrin (Co+2-TPP) as catalyst was studied. The results show that high yield of epoxidized oleic acid is obtained by the liq. phase epoxidn. of oleic acid in the presence of benzaldehyde using Co+2-TPP as catalyst, which does not catalyze the decompn. of perbenzoic acid, which is one of the oxidn. reagents for epoxidn. and is formed by

the oxidn. of benzaldehyde. The oleic acid can be easily epoxidized in this system. A reaction mechanism was proposed. The exptl. and theor. results indicate that the epoxidized oleic acid is formed by a series of free-radical reaction steps. The rate-detc. steps were exptl. identified, and the rate equation of epoxidn. was obtained. The factors affecting the rate of epoxidn. of oleic acid were also detd.

IT **Epoxidation catalysts**

(cobalt tetraphenylporphyrin; for oleic acid in presence of benzaldehyde)

IT **14172-90-8**

RL: **CAT (Catalyst use); USES (Uses)**

(epoxidn. of oleic acid in presence of benzaldehyde using cobalt catalyst)

L1 ANSWER 80 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:216336 HCAPLUS

DOCUMENT NUMBER: 126:292897

TITLE: Epoxidation and hydroxylation reactions catalyzed by the manganese and iron complexes of 5,10,15,20-tetrakis(2,6-dimethoxyphenyl)porphyrin

AUTHOR(S): Baciocchi, Enrico; Boschi, Tristano; Galli, Carlo; Lapi, Andrea; Tagliatesta, Pietro

CORPORATE SOURCE: Dip. Chimica, Univ. "La Sapienza", Rome, 00185, Italy

SOURCE: Tetrahedron (1997), 53(12), 4497-4502

CODEN: TETRAB; ISSN: 0040-4020

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 126:292897

AB Manganese(III) and iron(III) complexes of 5,10,15,20-tetrakis(2,6-dimethoxyphenyl)porphyrin (H₂TDM₂OPP) were tested as catalysts in the epoxidn. of alkenes and in the hydroxylation of adamantane with H₂O₂ (in the presence of imidazole) or PhIO as oxidants. The behavior of the two catalysts is compared with that of the corresponding manganese(III) and iron(III) complexes of 5,10,15,20-tetrakis(2,6-dichlorophenyl)porphyrin and 5,10,15,20-tetraphenylporphyrin, and the obsd. differences ascribed to the electron donating effect of the methoxy groups.

IT **Epoxidation catalysts**

Hydroxylation catalysts

(epoxidn. and hydroxylation reactions catalyzed by manganese and iron complexes of tetrakis(dimethoxyphenyl)porphyrin)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(epoxidn. and hydroxylation reactions catalyzed by manganese and iron complexes of tetrakis(dimethoxyphenyl)porphyrin)

IT **16456-81-8** 32195-55-4 91042-27-2 91463-17-1 134418-48-7
177094-42-7

RL: **CAT (Catalyst use); USES (Uses)**

(epoxidn. and hydroxylation reactions catalyzed by manganese and iron complexes of tetrakis(dimethoxyphenyl)porphyrin)

L1 ANSWER 81 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:195319 HCAPLUS

DOCUMENT NUMBER: 126:171186

TITLE: High-Pressure NMR Studies of (Porphinato)iron-Catalyzed Isobutane Oxidation Utilizing Dioxygen as the Stoichiometric Oxidant

AUTHOR(S): Moore, Kevin T.; Horvath, Istvan T.; Therien, Michael J.
CORPORATE SOURCE: Department of Chemistry, University of Pennsylvania, Philadelphia, PA, 19104-6323, USA
SOURCE: Journal of the American Chemical Society (1997), 119(7), 1791-1792
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The first high pressure NMR study of any metal-catalyzed oxidn. reaction is reported; this has allowed the identification of the predominant species present in soln. during a (porphinato)iron [PFe] catalyzed oxidn. of isobutane in which the hydrocarbon oxidizing equiv. are derived from dioxygen. These studies utilize two archetypal electron deficient PFe oxidn. catalyst; one is based on the well-studied 5,10,15,20-tetrakis(pentafluorophenyl)porphyrin [(C6F5)4PG2] ligand system, while the other features the recently developed, significantly more electron poor, 5,10,15,20-tetrakis(heptafluoropropyl)porphyrin [(C3F7)4PH2] macrocycle. This work demonstrates: (i) High pressure NMR methods can provide considerable mechanistic insight into catalyst hydrocarbon oxidn. reactions. (ii) Even in a (C3F7)4PH2 ligand environment, Fe(II) is not stable under moderate O2 pressure. (iii) (t-BuO)2 is produced in substantial quantity, consistent with a radical chain process likely dominating the obsd. reaction kinetics. (iv) That only high spin PFeIII compds. and no oxidn. products are obsd. immediately after pressurizing the sapphire NMR tubes with PFeII catalyst, solvent, oxygen, and isobutane; this suggests that alkyl radicals may derive from a reaction of PFeIII.bul.OH with isobutane that produces water and a PFeII complex. (v) Porphyrin decompn. occurs concomitant with the onset of catalytic isobutane oxidn., showing that simple electron deficient porphyrins cannot serve as com. isobutane oxidn. catalysts which consume stoichiometric oxidants that are derived from dioxygen.

IT Autoxidation

Autoxidation catalysts

(NMR and (porphinato)iron-catalyzed high-pressure isobutane oxidn. utilizing dioxygen as stoichiometric oxidant)

IT **Metalloporphyrins**

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(iron; NMR and (porphinato)iron-catalyzed high-pressure isobutane oxidn. utilizing dioxygen as stoichiometric oxidant)

L1 ANSWER 82 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:185125 HCAPLUS

DOCUMENT NUMBER: 126:199253

TITLE: Preparation of porphyrins and metal complexes thereof having haloalkyl side chains as catalysts for oxidn. of alkanes and for the decompn. of hydroperoxides

INVENTOR(S): Wijesekera, Tilak; Lyons, James E.; Ellis, Paul E., Jr.; Bhide, Manoj V.

PATENT ASSIGNEE(S): Sun Company, Inc. (R&M), USA

SOURCE: U.S., 12 pp., Cont.-in-part of U.S. Ser. No. 174,732.
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 11

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5608054	A	19970304	US 1995-405684	19950317
US 5571908	A	19961105	US 1993-174732	19931229
US 5990363	A	19991123	US 1993-175057	19931229
CA 2171680	AA	19960918	CA 1996-2171680	19960313
EP 735037	A1	19961002	EP 1996-301795	19960315
R: BE, DE, FR, GB, IT, NL				
JP 09249678	A2	19970922	JP 1996-87044	19960318
US 5767272	A	19980616	US 1996-769974	19961219
US 5770728	A	19980623	US 1996-769814	19961219

PRIORITY APPLN. INFO.:

US 1993-174732	19931229
US 1993-175057	19931229
US 1987-246	19870102
US 1987-66666	19870626
US 1989-425089	19891023
US 1990-568116	19900816
EP 1994-309892	19941219
CA 1994-2139177	19941228
JP 1995-13266	19950104
US 1995-405684	19950317

OTHER SOURCE(S): CASREACT 126:199253; MARPAT 126:199253

AB Transition metal complexes I (R1, R2, R4, R5 = H, alkyl, halogen, NO2, CN, haloalkyl; R3, R6 = H, haloalkyl; M = (un)substituted transition metal) of meso-(haloalkyl)porphyrins, are highly effective catalysts for oxidn. of alkanes and for the decompn. of hydroperoxides. Thus, isobutane was oxidized to Me3COH in 81-90 % yield by O2 in the presence of .mu.-oxo dimer of iron complex I (R1 = R2 = R4 = R5 = H, R3 = CF2CF2CF3, R6 = C6F5, CF2CF2CF3, M = Fe). Me3COOH was decompd. to Me3COH with 94-95% conversion in the presence of the same catalyst.

IT Decomposition catalysts

Oxidation catalysts

(prepn. of (haloalkyl)porphyrins as catalysts for alkane oxidn. and hydroperoxide decompn.)

IT **Metalloporphyrins**RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(prepn. of (haloalkyl)porphyrins as catalysts for alkane oxidn. and hydroperoxide decompn.)

L1 ANSWER 83 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:173083 HCAPLUS

DOCUMENT NUMBER: 126:257935

TITLE: Non-iron model studies on dioxygenases

AUTHOR(S): Nishinaga, Akira

CORPORATE SOURCE: Department of Applied Chemistry, Osaka Institute of Technology, Osaka, 535, Japan

SOURCE: Catalysis by Metal Complexes (1997), 19(Oxygenases and Model Systems), 157-194

CODEN: CMCOES; ISSN: 0920-4652

PUBLISHER: Kluwer

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review, with 91 refs., is given on non-iron model studies on

dioxygenases, with topics including: cobalt Schiff base complexes, Co(TPP) (H2TPP = tetraphenylporphyrin), vanadium complexes, manganese complexes, copper complexes and ruthenium, rhodium and iridium complexes.

IT **Oxidation catalysts**

(non-iron model studies on dioxygenases)

IT 7439-88-5D, Iridium, complexes, properties 7439-96-5D, Manganese, complexes, properties 7440-16-6D, Rhodium, complexes, properties 7440-18-8D, Ruthenium, complexes, properties 7440-48-4D, Cobalt, Schiff base complexes, properties 7440-50-8D, Copper, complexes, properties 7440-62-2D, Vanadium, complexes, properties **14172-90-8**

RL: **CAT (Catalyst use)**; PRP (Properties); USES (Uses)

(non-iron model studies on dioxygenases)

L1 ANSWER 84 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:164843 HCAPLUS

DOCUMENT NUMBER: 126:144033

TITLE: Metalloporphyrin-Catalyzed Oxidation of 2-Methylnaphthalene to Vitamin K3 and 6-Methyl-1,4-naphthoquinone by Potassium Monopersulfate in Aqueous Solution

AUTHOR(S): Song, Rita; Sorokin, Alexander; Bernadou, Jean; Meunier, Bernard

CORPORATE SOURCE: Laboratoire de Chimie de Coordination du CNRS, Toulouse, 31077, Fr.

SOURCE: Journal of Organic Chemistry (1997), 62(3), 673-678
CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 126:144033

AB The metalloporphyrin-catalyzed oxidn. of 2-methylnaphthalene by potassium monopersulfate produced mainly two naphthoquinones: 2-methyl-1,4-naphthoquinone (menadione or vitamin K3) and 6-methyl-1,4-naphthoquinone. In aq. soln. and at room temp. in the presence of 5 mol % of the water-sol. metalloporphyrins MnTPPS or FeTMPS, 2-methylnaphthalene was quant. oxidized to quinones. Based on expts. performed in 18O-labeled water and according to the "redox tautomerism" mechanism previously described for such catalysts, the oxidn. to quinones is proposed to be mainly due to a cytochrome P 450-type oxygenation reaction (oxygen atom transfer), rather than a peroxidase-type oxidn. (electron transfer).

IT **Oxidation catalysts**

(metalloporphyrin-catalyzed oxidn. of 2-methylnaphthalene to vitamin K3 and 6-methyl-1,4-naphthoquinone by potassium monopersulfate in aq. soln.)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(metalloporphyrin-catalyzed oxidn. of 2-methylnaphthalene to vitamin K3 and 6-methyl-1,4-naphthoquinone by potassium monopersulfate in aq. soln.)

L1 ANSWER 85 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:138274 HCAPLUS

DOCUMENT NUMBER: 126:263754

TITLE: How do electronegative substituents make metal complexes better catalysts for the oxidation of hydrocarbons by dioxygen?

AUTHOR(S): Boettcher, Arnd; Birnbaum, Eva R.; Day, Michael W.;

CORPORATE SOURCE: Gray, Harry B.; Grinstaff, Mark W.; Labinger, Jay A.
Arthur Amos Noyes Laboratory, California Institute of
Technology, Pasadena, CA, 91125, USA
SOURCE: Journal of Molecular Catalysis A: Chemical (1997),
117(1-3, Proceedings of the 6th International
Symposium on the Activation of Dioxygen and
Homogeneous Catalytic Oxidation, 1996), 229-242
CODEN: JMCCF2; ISSN: 1381-1169
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review of modeling studies that support a radical-chain autoxidn.
mechanism for the aerobic oxidn. of isobutane catalyzed by halogenated
porphyrin iron complexes is presented. A key role of the electroneg.
halogen substituents is to increase the FeIII/II redox potential and
thereby accelerate oxidn. of the intermediate tert-Bu hydroperoxide by
(porph)FeIII. New data on the electronic structures of electronegatively
substituted salen iron complexes are reported, and related to changes in
catalytic activity for oxidn. of cyclohexene. The crystal and mol.
structure of [Fe((NO₂)₄salen)(H₂O)Cl] is reported.

IT Autoxidation

Autoxidation catalysts

Redox potential

Substituent effects

(electroneg. substituent effect on metal complex autoxidn. catalysts
for hydrocarbons)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(halogenated porphyrin iron complexes; electroneg. substituent effect
on metal complex autoxidn. catalysts for hydrocarbons)

L1 ANSWER 86 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:134810 HCAPLUS

DOCUMENT NUMBER: 126:185719

TITLE: Determination of Reactive Intermediates in Iron
Porphyrin Complex-Catalyzed Oxygenations of
Hydrocarbons Using Isotopically Labeled Water:
Mechanistic Insights

AUTHOR(S): Lee, Kyoung Ah; Nam, Wonwoo

CORPORATE SOURCE: Department of Chemistry, Ewha Womans University,
Seoul, 120-750, S. Korea

SOURCE: Journal of the American Chemical Society (1997),
119(8), 1916-1922

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have studied iron porphyrin complex-catalyzed oxygenations of
hydrocarbons by several oxidants [e.g., hydrogen peroxide, tert-Bu
hydroperoxide, and m-chloroperoxybenzoic acid (MCPBA)], in the presence of
H₂18O. In the olefin epoxidn. and alkane hydroxylation reactions
catalyzed by [meso-tetrakis(pentafluorophenyl)porphinato]iron(III)
chloride [Fe(F₂₀TPP)Cl], the percentages of ¹⁸O incorporated into the
oxygenated products were found to be the same in all of the reactions of
hydrogen peroxide, tert-Bu hydroperoxide, and MCPBA, leading us to
conclude that a common high-valent iron oxo complex was the reactive
intermediate responsible for oxygen atom transfer. When the epoxidn. of

cyclooctene by MCPBA and H₂O₂ was performed at low temp. in the presence of H₂¹⁸O, it was found that there was no ¹⁸O-incorporation from labeled water into cyclooctene oxide. We interpreted the lack of ¹⁸O-incorporation in these reactions with the suggestion that an electronegatively-substituted iron porphyrin complex forms a relatively stable (Porp)Fe^{III}-OOR species and this intermediate transfers its oxygen to olefin prior to the O-O bond cleavage at low temp. As the reaction temp. raised from -78.degree. to room temp., the amt. of ¹⁸O incorporated into the oxide product gradually increased in the reactions of cyclooctene epoxidn. This was attributed to the fast conversion of Fe^{III}-OOR to the high-valent iron oxo complex via the O-O bond cleavage at higher temp. We found, by studying the effects of the olefin and H₂¹⁸O concns. on the amt. of ¹⁸O incorporated into the oxide product, that the rate of the oxygen exchange between high-valent iron oxo complex and labeled water was slower than that of the oxygen atom transfer from the intermediate to org. compds. in catalytic oxygenation reactions. Blocking an axial position of iron porphyrin complex with imidazole prevented the ¹⁸O-incorporation from labeled water into the oxygenated products, explaining the phenomenon of no oxygen exchange in cytochrome P 450 systems.

IT Epoxidation

Epoxidation catalysts

Metalloporphyrins

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(detn. of reactive intermediates in iron porphyrin complex-catalyzed oxygenations of hydrocarbons using isotopically labeled water)

L1 ANSWER 87 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:130920 HCAPLUS

DOCUMENT NUMBER: 126:149093

TITLE: Sulfonamide porphyrins in the biomimetic oxidation by H₂O₂. An efficient two-phase system

AUTHOR(S): Rocha Gonsalves, Antonio M. d'A.; Pereira, Mariette M.; Serra, Armenio C.

CORPORATE SOURCE: Dep. Quim., Univ. Coimbra, Coimbra, P-3000, Port.

SOURCE: Anales de Quimica International Edition (1996), 92(6), 375-380

CODEN: AQIEFZ

PUBLISHER: Springer

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A catalytic biphasic aq./org. system for hydrogen peroxide oxidns. was studied and improved, and a new metalloporphyrin derived from meso-tetrakis-2,6-dichlorophenylporphyrin bearing five sulfonamide side chains in the meso-phenyls and in one of the .beta.-positions was synthesized and established as an highly efficient and stable catalyst working in the newly developed system. An interface mechanism is proposed to interpret the role of lipophilic acids as co-catalysts, the efficiency of the catalysis and the stability of the catalyst in the new system.

IT **Epoxidation catalysts**

Oxidation catalysts

(mechanism; sulfonamide porphyrins in biomimetic oxidn. by H₂O₂ and efficient two-phase system)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(sulfonamide porphyrins in biomimetic oxidn. by H₂O₂ and efficient two-phase system)

L1 ANSWER 88 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1997:129554 HCAPLUS
 DOCUMENT NUMBER: 126:131244
 TITLE: Preparation of arylalkyl hydroperoxides by using oxygen- or peroxide-treated transition metal complexes as catalysts
 INVENTOR(S): Matsui, Narikazu; Takai, Toshihiro; Matsuoka, Hideto; Ishibashi, Masayasu; Kagayama, Akishi; Kuroda, Hiroshi; Fujita, Terunori
 PATENT ASSIGNEE(S): Mitsui Petrochemical Ind, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08319269	A2	19961203	JP 1995-125123	19950524
PRIORITY APPLN. INFO.:			JP 1995-125123	19950524
OTHER SOURCE(S): MARPAT 126:131244				

AB Arylalkyl hydroperoxides are prepd. by oxidn. of Ar[CHRQ]_n (Ar = arom. hydrocarbonyl with valency n; R, Q = H, alkyl; n = 1-3) with O-contg. gas by using O- or peroxide-treated transition metal complexes as catalysts. Phthalocyanine-Mn(II) complex was treated with cumene hydroperoxide (I) in cumene at 80.degree. for 1 h to give a catalyst soln. O was introduced into a mixt. of the catalyst soln., I, and cumene at 80.degree. over 6.5 h to give I at 1.63 wt.%/h with 86% selectivity.

IT **Peroxidation catalysts**
 (hydroperoxidn.; hydroperoxidn. of arylalkyl compds. by using oxidized transition metal complexes as catalysts)

IT **Metalloporphyrins**
Metalloporphyrins
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (transition metal, oxidized; hydroperoxidn. of arylalkyl compds. by using oxidized transition metal complexes as catalysts)

L1 ANSWER 89 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1997:119978 HCAPLUS
 DOCUMENT NUMBER: 126:144043
 TITLE: Oxidation of 1,3-dimethylthymine with cumene hydroperoxide catalyzed by 5,10,15,20-tetraarylporphyrinatomanganese(III) chlorides
 AUTHOR(S): Gulati, Anju; Chauhan, S. M. S.
 CORPORATE SOURCE: Dep. Chem., Univ. Delhi, Delhi, 110 008, India
 SOURCE: Journal of the Indian Chemical Society (1997), 74(1), 42
 CODEN: JICSAH; ISSN: 0019-4522
 PUBLISHER: Indian Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 126:144043

AB 1,3-Dimethylthymine was oxidized with cumene hydroperoxide catalyzed by 5,10,15,20-tetraarylporphyrinatomanganese(III) chlorides.

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(manganese complexes; oxidn. of dimethylthymine with cumene hydroperoxide catalyzed by porphyrinatomanganese(III) chlorides)

IT Oxidation

Oxidation catalysts

(oxidn. of dimethylthymine with cumene hydroperoxide catalyzed by porphyrinatomanganese(III) chlorides)

L1 ANSWER 90 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:118807 HCAPLUS

DOCUMENT NUMBER: 126:250922

TITLE: Oxidation of .beta.,.gamma.-unsaturated ketones with molecular oxygen catalyzed by metal phthalocyanines and porphyrins. A practical synthesis of oxophorone

AUTHOR(S): Ito, Nobuhiko; Etoh, Takeaki; Hagiwara, Hisahiro; Kato, Michiharu

CORPORATE SOURCE: Research Development Laboratories, Soda Aromatic Co., Ltd., Noda, 270, Japan

SOURCE: Synthesis (1997), (2), 153-155
CODEN: SYNTBF; ISSN: 0039-7881

PUBLISHER: Thieme

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 126:250922

AB Oxidn. of 3,5,5-trimethylcyclohex-3-en-1-one with O₂ catalyzed by metal phthalocyanines and 5,10,15,20-tetraphenylporphyrins (TPP) including Mn(II), Mn(III), Fe(II), Fe(III), Co(II), Cu(II), and Ru(II) to 3,5,5-trimethylcyclohex-2-ene-1,4-dione was studied. TPPMn(III)Cl showed an excellent catalytic activity, affording the dione in 93% yield and 12500 turnover no.

IT **Oxidation catalysts**

(oxidn. of .beta.,.gamma.-unsatd. ketones with mol. oxygen catalyzed by metal phthalocyanines and porphyrins)

IT 132-16-1 147-14-8 3317-67-7 14055-02-8 **14172-90-8**
14172-91-9 14172-92-0 14325-24-7 14705-63-6 14832-14-5
16456-81-8 31004-82-7 32073-84-0 32195-55-4 53177-12-1

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. of .beta.,.gamma.-unsatd. ketones with mol. oxygen catalyzed by metal phthalocyanines and porphyrins)

L1 ANSWER 91 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:54183 HCAPLUS

DOCUMENT NUMBER: 126:151972

TITLE: Synthesis and properties of 5-(4-alanine butoxyphenyl)-10,15,20-triphenylporphyrin and its complexes

AUTHOR(S): Ni, Chunlin; Wang, Jingqiu; Qin, Zibin

CORPORATE SOURCE: Dep. Chemistry, Hubei Sanxia Teachers College, Yichang, 443000, Peop. Rep. China

SOURCE: Wuji Huaxue Xuebao (1996), 12(4), 418-422
CODEN: WHUXEO; ISSN: 1001-4861

PUBLISHER: "Wuji Huaxue Xuebao" Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB A new monosubstituted alanine tetraphenylporphyrin, 5-(4-alanine butoxyphenyl)-10,15,20-triphenylporphyrin (H2L) and its Co(II), Cu(II), Zn(II) complexes were synthesized. Their structures were characterized by elemental anal., UV, IR, fluorescence and resonance Raman spectra. The oxidn. of arom. aldehydes with mol. oxygen was studied. The oxygen uptake and changes in the electronic spectra of ML during the reaction were measured. The effect of ML concn. and substrate on oxidn. reaction was studied. CoL can catalyze the oxidn. of arom. aldehydes, the oxygen max. uptaking rates gradually increases and the induction period decreases with resp. increase of CoL concn.

IT **Oxidation catalysts**

Oxidation kinetics

(prepn. of (alaninebutoxyphenyl)triphenylporphyrin and its transition metal complexes and catalytic oxidn. of aldehydes by its cobalt complex)

IT **Metalloporphyrins**

Metalloporphyrins

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(transition metal; prepn. of (alaninebutoxyphenyl)triphenylporphyrin and its transition metal complexes and catalytic oxidn. of aldehydes by its cobalt complex)

L1 ANSWER 92 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:26373 HCAPLUS

DOCUMENT NUMBER: 126:46956

TITLE: Preparation of arylalkyl alcohols by using transition metal complexes as oxidation catalysts

INVENTOR(S): Matsui, Narikazu; Takai, Toshihiro; Fujita, Terunori

PATENT ASSIGNEE(S): Mitsui Petrochemical Ind, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08283188	A2	19961029	JP 1995-82639	19950407
PRIORITY APPLN. INFO.:			JP 1995-82639	19950407
OTHER SOURCE(S): CASREACT 126:46956; MARPAT 126:46956				

AB Arylalkyl alcs. are selectively prepd. by oxidn. of Ar[CHPQ]_n (P, Q = H, alkyl; Ar = arom. hydrocarbyl with valency n; n = 1-3) with O-contg. gas in the presence of transition metal complexes with N-contg. ligands as catalysts. Air was introduced to a mixt. of cumene 90, cumene hydroperoxide 10, and Fe(II) phthalocyanine complex 0.020 g at 80.degree. over 2 h to give dimethylphenylcarbinol with 85% selectivity.

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(complexes, with transition metals; prepn. of arylalkyl alcs. from arylalkanes by using **transition metal complexes** as catalysts)

IT **Oxidation catalysts**

(prepn. of arylalkyl alcs. from arylalkanes by using transition metal complexes as catalysts)

L1 ANSWER 93 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:733575 HCAPLUS
DOCUMENT NUMBER: 126:7689
TITLE: Preparation of alkyl isothiocyanates by oxidation of
alkyl dithiocarbamates
INVENTOR(S): Oonishi, Akihisa
PATENT ASSIGNEE(S): Toyo Kasei Kogyo Co Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08245563	A2	19960924	JP 1995-79970	19950309

PRIORITY APPLN. INFO.: JP 1995-79970 19950309
OTHER SOURCE(S): CASREACT 126:7689
AB Alkyl isothiocyanates, useful as intermediates for thiourea and 5-mercaptotetrazole for synthesis of agrochemicals and antibiotics, are prepared by oxidation of alkyl dithiocarbamates with oxygen gas in the presence of inorganic metal salts and organic ligands. CS₂ was added dropwise to a mixture of an aqueous MeNH₂ solution, CH₂Cl₂, and pentadecane at 20-25 degrees over 30 min and the reaction mixture was kept at 20-25 degrees for 1 h. After addition of FeCl₃·6H₂O and 12-crown-4, the reaction mixture was bubbled with air for 7 h to give MeNCS at reaction rate 3-times higher than the control reaction using FeCl₃ alone.
IT **Oxidation catalysts**
(preparation of alkyl isothiocyanates by oxidation of alkyl dithiocarbamates using inorganic metal salts and organic ligands)
IT 60-00-4, EDTA, uses 123-54-6, Acetylacetone, uses 294-93-9, 12-Crown-4 917-23-7, Tetraphenylporphine 7705-08-0, Ferric chloride, uses 7773-01-5, Manganese dichloride **15489-90-4**, Hematin 17455-13-9, 18-Crown-6 33100-27-5, 15-Crown-5
RL: **CAT (Catalyst use)**; USES (Uses)
(preparation of alkyl isothiocyanates by oxidation of alkyl dithiocarbamates using inorganic metal salts and organic ligands)

L1 ANSWER 94 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:682012 HCAPLUS
DOCUMENT NUMBER: 126:26027
TITLE: Preparation of transition metal porphyrins
INVENTOR(S): Wijesekera, Tilak; Lyons, James E.; Ellis, Paul E., Jr.
PATENT ASSIGNEE(S): Sun Company, Inc. (R&M), USA
SOURCE: U.S., 7 pp., Cont.-in-part of U.S. Ser. No. 568,116.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 11
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5571908	A	19961105	US 1993-174732	19931229
US 4895682	A	19900123	US 1987-246	19870102

US 4900871	A	19900213	US 1987-66666	19870626
CA 1336188	A1	19950704	CA 1987-553420	19871203
US 5093491	A	19920303	US 1990-466163	19900117
CA 2139177	AA	19950630	CA 1994-2139177	19941228
EP 665230	A2	19950802	EP 1994-309892	19941229
EP 665230	A3	19960117		
R: BE, DE, FR, GB, IT, NL				
JP 07206865	A2	19950808	JP 1995-13266	19950104
US 5608054	A	19970304	US 1995-405684	19950317
US 5760217	A	19980602	US 1996-672524	19960625
US 5663328	A	19970902	US 1996-672202	19960627
US 5767272	A	19980616	US 1996-769974	19961219
US 5770728	A	19980623	US 1996-769814	19961219
PRIORITY APPLN. INFO.:			US 1987-246	19870102
			US 1987-66666	19870626
			US 1989-425089	19891023
			US 1990-568116	19900816
			US 1993-174732	19931229
			US 1993-175057	19931229
			US 1994-303106	19940907
			EP 1994-309892	19941219
			CA 1994-2139177	19941228
			JP 1995-13266	19950104
			US 1995-405684	19950317
OTHER SOURCE(S): MARPAT 126:26027				
AB	Fe, Mn, Co or Ru complexes of porphyrins having H, haloalkyl or haloaryl groups in meso positions, two of the opposed meso atoms or groups being H or haloaryl, and two of the opposed meso atoms or groups being H or haloalkyl, but not all four of the meso atoms or groups being H or all four of the meso positions substituted with haloalkyl groups and the beta positions are substituted with halogen atoms, were prepd. A new method of synthesizing porphyrinogens is also provided. These complexes are useful as hydrocarbon conversion catalysts; for example, for the oxidn. of alkanes and the decompn. of hydroperoxides.			
IT	Oxidation catalysts (transition metal haloalkyl/haloarylporphyrin complexes for alkanes)			
IT	Metalloporphyrins Metalloporphyrins RL: CAT (Catalyst use) ; SPN (Synthetic preparation); PREP (Preparation); USES (Uses) (transition metal, haloalkyl/haloaryl derivs. with/without halogenation; prepn. and catalysis in oxidn. of alkanes or decompn. of hydroperoxides)			
L1	ANSWER 95 OF 344 HCAPLUS COPYRIGHT 2003 ACS			
ACCESSION NUMBER:	1996:680722 HCAPLUS			
DOCUMENT NUMBER:	126:59547			
TITLE:	Mechanisms for (porphyrinato)iron(III)-catalyzed oxygenation of styrenes by O ₂ in presence of BH ₄ -			
AUTHOR(S):	Takeuchi, Masayuki; Kodera, Masahito; Kano, Koji; Yoshida, Zen-ichi			
CORPORATE SOURCE:	Department of Applied Chemistry, Faculty of Engineering, Doshisha University, Tanabe, Kyoto, 610-03, Japan			
SOURCE:	Journal of Molecular Catalysis A: Chemical (1996), 113(1-2), 51-59 CODEN: JMCCF2; ISSN: 1381-1169			

PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Mechanisms have been proposed for the (porphyrinato)iron(III)-catalyzed oxidn. of styrene and .alpha.-methylstyrene by O₂ in benzene-ethanol contg. NaBH₄. The product anal. and the deuterium incorporation using NaBD₄ suggest that the (.sigma.-alkyl)FeIII-Por complex, [C₆H₅CH(CH₃)]FeIII-Por, is formed as an intermediate in the reaction of styrene. Insertion of O₂ to the (.sigma.-alkyl)FeIII-Por complex having a radical character yields a (peroxy)iron(III) complex, [C₆H₅CH(CH₃)OO]FeIII-Por. The homolytic fission of the O-O bond followed by the hydrogen abstraction within the radical pair affords acetophenone and (HO)FeIII-Por. Acetophenone is readily reduced with NaBH₄ to give 1-phenylethanol. Meanwhile, the reaction of .alpha.-methylstyrene with BH₄⁻ in the presence of Por-FeIIICl may also yield the (.sigma.-alkyl)FeIII-Por complex, which takes up O₂ to form a (peroxy)iron(III) complex, (C₆H₅C(CH₃)₂OO)FeIII-Por. The (peroxy)iron(III) complex is directly reduced by BH₄⁻ to give 2-phenyl-2-propanol and (HO)FeIII-Por. In the reaction of styrene, such direct redn. of the (peroxy)iron(III) complex as a minor pathway competes with the homolytic fission of its O-O bond.

IT Oxidation

Oxidation catalysts

(mechanism of (porphinato)iron-catalyzed oxidn. of alkenes by O₂ in benzene-ethanol)

IT 103-19-5, Di-p-tolyl disulfide 882-33-7, Phenyl disulfide 1142-19-4,
Bis(p-chlorophenyl) disulfide 16456-81-8 36965-71-6
77439-21-5 91042-27-2

RL: CAT (Catalyst use); USES (Uses)

(mechanism of (porphinato)iron-catalyzed oxidn. of alkenes by O₂ in benzene-ethanol)

L1 ANSWER 96 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:680716 HCAPLUS

DOCUMENT NUMBER: 126:41831

TITLE: Mn(III)-tetraarylporphyrins bearing covalently bonded crown-ethers: synthesis and catalytic activity in 1-dodecene epoxidation promoted by aqueous HOCl/OCl⁻
AUTHOR(S): Banfi, Stefano; Manfredi, Amedea; Montanari, Fernando; Pozzi, Gianluca; Quici, Silvio; Ursino, Felice
CORPORATE SOURCE: Centro CNR and Dipartimento di Chimica Organica e Industriale dell'Universita, Via Golgi 19, Milan, 20133, Italy

SOURCE: Journal of Molecular Catalysis A: Chemical (1996), 113(1-2), 369-377

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Mn(III)-complexes of tetraarylporphyrins bearing a crown-ether covalently linked through a single flexible chain were synthesized. Their basic frame is that of the robust tetrakis(2,6-dichlorophenyl)porphyrin and the chain is connected by ether linkage either to the ortho or to the meta positions (3-4) of one meso-aryl group. Catalytic efficiency was tested in the epoxidn. of the poorly reactive 1-dodecene at 0.degree. under CH₂Cl₂/H₂O two-phase conditions in the presence of NaOCl (pH 9.5-10.0) as O donor. The results obtained led the authors to propose a general

acid/base catalysis as an explanation for the pos. effect of crown-ethers in the alkene epoxidns. with this catalytic system.

IT **Epoxidation catalysts**

(manganese complexes with porphyrins having crown ether pendants for 1-dodecene)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(manganese porphyrin complexes; prepn. and epoxidn. catalyst for 1-dodecene)

L1 ANSWER 97 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:680711 HCAPLUS

DOCUMENT NUMBER: 126:69227

TITLE: Enantioselective epoxidation of olefins by single-oxygen atom donors catalyzed by manganese-glycoconjugated porphyrins

AUTHOR(S): Vilain-Deshayes, Sandrine; Robert, Anne; Maillard, Philippe; Meunier, Bernard; Momenteau, Michel

CORPORATE SOURCE: Institut Curie, Section Biologie, CNRS URA 1387, Bat. 112, Centre Universitaire, Orsay, 91405, Fr.

SOURCE: Journal of Molecular Catalysis A: Chemical (1996), 113(1-2), 23-34

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New chiral porphyrins bearing glycosyl substituents (glucose, maltose or lactose) at ortho or meta positions of the meso-Ph groups were synthesized. Their manganese complexes, assocd. with hydrogen monopersulfate, lithium hypochlorite, hydrogen peroxide, or iodosylbenzene, were used as enantioselective catalysts for the epoxidn. of 4-chlorostyrene and 1,2-dihydronaphthalene.

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(enantioselective epoxidn. of olefins by single-oxygen atom donors catalyzed by manganese-glycoconjugated porphyrins)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(manganese porphyrin complexes; enantioselective epoxidn. of olefins by single-oxygen atom donors catalyzed by manganese-glycoconjugated porphyrins)

IT **Epoxidation**

Epoxidation catalysts

(stereoselective; enantioselective epoxidn. of olefins by single-oxygen atom donors catalyzed by manganese-glycoconjugated porphyrins)

L1 ANSWER 98 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:680700 HCAPLUS

DOCUMENT NUMBER: 126:103763

TITLE: Nonradical tetrabutylammonium monopersulfate oxidation of hydrocarbons catalyzed by [Mn3O4bipy4(H2O)2](ClO4)4

AUTHOR(S): Wessel, Jeremy; Crabtree, Robert H.

CORPORATE SOURCE: Department of Chemistry, Yale University, New Haven, CT, 06520, USA

SOURCE: Journal of Molecular Catalysis A: Chemical (1996),
113(1-2), 13-22
CODEN: JMCCF2; ISSN: 1381-1169
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 126:103763

AB Tetrabutylammonium monopersulfate (2NBu4HSO5.cntdot.NBu4HSO4.cntdot.(NBu4
2SO4) is an effective primary oxidant with a high tendency to promote oxo
transfer rather than radical pathways in catalysis. Nonradical
hydrocarbon oxidn. is seen with the complex [Mn3O4bipy4(H2O)2](ClO4)4 as
catalyst as indicated by mechanistic studies; this contrasts with the
radical pathways found for the same catalyst with t-BuOOH as the primary
oxidant. The catalyst is robust, giving up to 15000 catalytic turnovers,
and very efficient, the rate of 1-alkene epoxidn. being 4000 turnovers/h.

IT Epoxidation
Epoxidation catalysts
Epoxidation kinetics
Oxidation
Oxidation catalysts
Oxidation kinetics
Reaction constant
Solvent effect
Stereochemistry
(nonradical tetrabutylammonium monopersulfate oxidn. of hydrocarbons
catalyzed by [Mn3O4bipy4(H2O)2](ClO4)4)

IT **Metalloporphyrins**
RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical
process); PROC (Process); USES (Uses)
(nonradical tetrabutylammonium monopersulfate oxidn. of hydrocarbons
catalyzed by [Mn3O4bipy4(H2O)2](ClO4)4)

L1 ANSWER 99 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:680698 HCAPLUS
DOCUMENT NUMBER: 126:59546
TITLE: Aerobic oxidation of hydrocarbons catalyzed by
electronegative iron salen complexes
AUTHOR(S): Boettcher, Arnd; Grinstaff, Mark W.; Labinger, Jay A.;
Gray, Harry B.
CORPORATE SOURCE: Arthur Amos Noyes Laboratory, California Institute of
Technology, Pasadena, CA, 91125, USA
SOURCE: Journal of Molecular Catalysis A: Chemical (1996),
113(1-2), 191-200
CODEN: JMCCF2; ISSN: 1381-1169
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A no. of salen derivs. bearing electroneg. substituents and their
corresponding iron(III) chloro complexes have been prepd. Several of the
complexes catalyze aerobic oxidn. of cyclohexene, primarily to allylic
oxidn. products. Evidence supports a radical chain autoxidn. mechanism,
with the complex functioning to decomp. intermediate alkyl hydroperoxides.
Activity is obsd. only for complexes with relatively high Fe(III/II) redn.
potentials, but the incomplete correlation of activity with potential
indicates that more subtle structural and electronic effects also play an
important role in detg. the rates of the catalytic reactions.

IT Autoxidation

Autoxidation catalysts

Autoxidation kinetics

Complexation

Cyclic voltammetry

Magnetic moment

Molecular structure

Molecular structure-property relationship

Redox potential

Reduction potential

Solvent effect

(aerobic oxidn. of hydrocarbons catalyzed by electroneg. iron salen complexes)

IT **16456-81-8** 36965-71-6 38586-93-5 62945-09-9 185042-10-8
 185042-11-9 185042-12-0 185042-14-2 185042-15-3 185042-16-4
 185042-17-5 185042-18-6 185042-19-7

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(aerobic oxidn. of hydrocarbons catalyzed by electroneg. iron salen complexes)

L1 ANSWER 100 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:680690 HCAPLUS

DOCUMENT NUMBER: 126:47040

TITLE: Shape selective epoxidation of alkenes by metalloporphyrin-dendrimers

AUTHOR(S): Bhyrappa, P.; Young, James K.; Moore, Jeffrey S.; Suslick, Kenneth S.

CORPORATE SOURCE: School of Chemical Sciences, University of Illinois at Urbana-Champaign, 505 S. Mathews Avenue, Urbana, IL, 61801, USA

SOURCE: Journal of Molecular Catalysis A: Chemical (1996), 113(1-2), 109-116
CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of oxidatively robust manganese-porphyrin-dendrimers were synthesized in good yields for use as shape-selective oxidn. catalysts. The poly(Ph ester) dendrimers with the bulky tert-Bu terminal groups were synthesized with a convergent approach. These cascade dendrimers were linked at the meta-Ph positions of the 5,10,15,20-tetrakis(3',5'-dihydroxyphenyl)porphinatomanganese(III) chloride to produce a sterically hindered metal center. The regioselectivity of these catalysts was detd. for epoxidn. of nonconjugated dienes and 1:1 intermol. mixt. of linear and cyclic alkenes using iodosylbenzene as the oxygen donor. Metalloporphyrin dendrimers exhibit significantly higher substrate selectivity compared to unsubstituted Mn(TPP)(Cl), but only moderate selectivity relative to the extremely hindered bis-pocket porphyrin, 5,10,15,20-tetrakis(2',4',6'-triphenylphenyl)porphinato manganese(III) acetate. Mol. modeling was performed on the porphyrin dendrimers to elucidate the extent of steric crowding around the porphyrin. There is a relatively large cavity for substrate entrance in the manganese-porphyrin-dendrimers relative to extremely hindered bis-pocket porphyrin.

IT **Epoxidation catalysts**

(epoxidn. of alkenes catalyzed by metalloporphyrin-dendrimers)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(epoxidn. of alkenes catalyzed by metalloporphyrin-dendrimers)

L1 ANSWER 101 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:680689 HCAPLUS
DOCUMENT NUMBER: 126:81172
TITLE: Electropolymerized manganese porphyrin films as
catalytic electrode materials for biomimetic
oxidations with molecular oxygen
AUTHOR(S): Bedioui, Fethi; Devynck, Jacques; Bied-Charreton,
Claude
CORPORATE SOURCE: Laboratoire d'Electrochimie et de Chimie Analytique
(URA no. 216 du CNRS), Ecole Nationale Supérieure de
Chimie de Paris, 11 rue Pierre et Marie Curie, Paris,
75231/05, Fr.
SOURCE: Journal of Molecular Catalysis A: Chemical (1996),
113(1-2), 3-11
CODEN: JMCCF2; ISSN: 1381-1169
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 48 refs. Some recently published results on the
electrocatalytic oxidn. of hydrocarbons, olefins and a thioacetamide
deriv. by mol. oxygen are described. The catalytic process involves
electropolymd. manganese porphyrin films as electrode materials in
acetonitrile or dichloromethane soln. contg. 1-methylimidazole and benzoic
(or acetic) anhydride, with acceptable catalytic efficiency (up to 500
turnovers of the catalyst per h) and faradaic yield (up to 98%).
Confinement of the catalyst on the electrode surface markedly improves its
stability compared with that of homogeneous electrocatalytic systems and
makes the supported porphyrin stable and reusable.
IT **Oxidation catalysts**
(electrochem.; electropolymd. manganese porphyrin films for
hydrocarbons and biol. active mols. with mol. oxygen)
IT **Metalloporphyrins**
RL: **CAT (Catalyst use)**; PRP (Properties); USES (Uses)
(manganese porphyrin complexes, polymers; electropolymd. manganese
porphyrin films as catalytic electrode materials for biomimetic oxidns.
with mol. oxygen)

L1 ANSWER 102 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:670754 HCAPLUS
DOCUMENT NUMBER: 126:47010
TITLE: Epoxidation of styrene with hydrogen peroxide
catalyzed by long-chain alkoxy-substituted
metalloporphyrins
AUTHOR(S): Xiao, Youfa; You, Jingsong; Yu, Xiaoqi; Yu, Xiaohua;
Lan, Zhonguei
CORPORATE SOURCE: Department of Chemistry, Sichuan University, Chengdu,
610064, Peop. Rep. China
SOURCE: Huaxue Yanjiu Yu Yingyong (1996), 8(2), 270-272
CODEN: HYYIFM; ISSN: 1004-1656
PUBLISHER: Huaxue Yanjiu Yu Yingyong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 126:47010

AB Styrene can be epoxidized with 30% H₂O₂ under H₂O-CH₂Cl₂ two-phase conditions. Reactions are catalyzed by long-chain alkoxy-substituted metalloporphyrins (P) and are strongly accelerated by the addn. of catalytic amt. of benzoic acid (A) and lipophilic imidazole (L): pH values are adjusted to the range of 4.5-5.0. The fastest reaction rates are found for L/P = 12 and A/P = 1. The long-chain alkoxy-substituted metalloporphyrins show higher catalytic activity than the simple metalloporphyrins. This is because the hydrophobic microenvironment provided by the long-chain alkoxy plays an important role in the epoxidn. of styrene.

IT Epoxidation

Epoxidation catalysts

(epoxidn. of styrene with hydrogen peroxide catalyzed by long-chain alkoxy-substituted metalloporphyrins)

IT **Metalloporphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(epoxidn. of styrene with hydrogen peroxide catalyzed by long-chain alkoxy-substituted metalloporphyrins)

L1 ANSWER 103 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:665379 HCAPLUS

DOCUMENT NUMBER: 125:309884

TITLE: Synthesis of polymer-supported manganese(III) porphyrins and catalyzed olefin epoxidation

AUTHOR(S): Xiao, Youfa; You, Jingsong; Yu, Xiaoqi; Wu, Yiliang; Lan, Zhonguei

CORPORATE SOURCE: Dep. Chem., Sichuan Univ., Chengdu, 610064, Peop. Rep. China

SOURCE: Huaxue Yanjiu Yu Yingyong (1996), 8(3), 376-380

CODEN: HYYIFM; ISSN: 1004-1656

PUBLISHER: Huaxue Yanjiu Yu Yingyong Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Metalloporphyrins can catalyze oxidns. similar to those brought about by cytochrome P 450. Immobilization of metalloporphyrins can remarkably improve the catalytic properties of them and for this reason they have received much attention in recent years. The synthesis of a series of polymer-supported manganese(III) porphyrin is described. Hydroxy-substituted tetra-Ph porphyrins manganese(III) were attached to polystyrene resins via ether bond. ESR, IR and UV-Vis diffuse reflection spectra were used to characterize the materials. By anchoring manganese(III) porphyrins to polystyrene resins, the catalytic activity and stability of the manganese porphyrins were greatly enhanced. It was shown that polymer-supported manganese (III) porphyrins are effective catalysts for olefin epoxidn. and can be reused.

IT Alkenes, reactions

Epoxidation catalysts

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis of polymer-supported manganese(III) porphyrins and catalyzed olefin epoxidn.)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

(**metal complexes**, synthesis of polymer-supported manganese(III) porphyrins and catalyzed olefin epoxidn.)

L1 ANSWER 104 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:588078 HCAPLUS
DOCUMENT NUMBER: 125:276774
TITLE: Metalloporphyrinosilicas: a new class of hybrid organic-inorganic materials acting as selective biomimetic oxidation catalysts
AUTHOR(S): Battioni, P.; Cardin, E.; Louloudi, M.; Schollhorn, B.; Spyroulias, G. A.; Mansuy, D.; Traylor, T. G.
CORPORATE SOURCE: Lab. Chim. Biochim. Pharmacol. Toxicol., Univ. Rene Descartes, Paris, 75270, Fr.
SOURCE: Chemical Communications (Cambridge) (1996), (17), 2037-2038
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB New hybrid org.-inorg. materials are prepd. by hydrolysis and polycondensation, or cocondensation with tetraethoxysilane, of iron porphyrins bearing a trifluorosilyl function; despite their insoly., these 'metalloporphyrinosilicas' are efficient catalysts for alkene epoxidn. by PhIO or tert-BuOOH and alkane hydroxylation by PhIO, the iron porphyrinosilicas with low sp. surface areas (.simeq. 60 m2 g-1) catalyzing a shape-selective hydroxylation of alkane mixts.
IT Oxidation
 Oxidation catalysts
 (metalloporphyrinosilica hybrid materials acting as selective biomimetic oxidn. catalysts)
IT **Porphyrins**
 RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (**metal complexes**, metalloporphyrinosilica hybrid materials acting as selective biomimetic oxidn. catalysts)

L1 ANSWER 105 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:577177 HCAPLUS
DOCUMENT NUMBER: 125:292129
TITLE: Biomimetic hydroxylation of aromatic compounds
AUTHOR(S): Lindemann, Dirk; Froehlich, Luella; Goeber, Berthold
CORPORATE SOURCE: Institut Pharmazie, Humboldt-Universitaet, Berlin, D-13086, Germany
SOURCE: Scientia Pharmaceutica (1996), 64(3/4), 541-554
CODEN: SCPHA4; ISSN: 0036-8709
PUBLISHER: Oesterreichische Apotheker-Verlagsgesellschaft
DOCUMENT TYPE: Journal; General Review
LANGUAGE: German
AB A review with 30 refs., describing synthetic metalloporphyrin catalyst system development to mimic drug metab. reactions, biomimetic cytochrome P 450 analogous monooxygenation, arom. hydroxylation of anisole, toluene, and naphthalene in presence of Fe- and Mn-porphyrins, and oxidn. of propiverine, clemastine, and 4-methoxybenzophenone in presence of Fe-, Mn-, Co-, and Zn-catalysts.
IT Drug biotransformation
 Hydroxylation catalysts
 Oxidation catalysts
 (metalloporphyrin catalysts in biomimetic hydroxylation of arom. compds. to mimic drug metab.)
IT **Porphyrins**
 RL: BSU (Biological study, unclassified); **CAT (Catalyst use)**;

BIOL (Biological study); USES (Uses)

(**metal complexes**, metalloporphyrin catalysts in biomimetic hydroxylation of arom. compds. to mimic drug metab)

L1 ANSWER 106 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:544595 HCAPLUS

DOCUMENT NUMBER: 125:247492

TITLE: Reactivity of polyhalogenated metalloporphyrins in epoxidation of propene with magnesium monoperoxyphthalate

AUTHOR(S): Iwanejko, R.; Battioni, P.; Mansuy, D.; Mlodnicka, T.

CORPORATE SOURCE: Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, St. Niezapominajek, Krakow, 30-239, Pol.

SOURCE: Journal of Molecular Catalysis A: Chemical (1996), 111(1-2), 7-9

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Epoxidn. of propene with magnesium monoperoxyphthalate used as oxidant and manganese as well as iron polyhalogenated porphyrins as catalysts has been investigated under mild conditions. The systems with manganese tetra-ortho-dichlorophenyl- and tetrapentafluorophenylporphyrin appeared very effective and high turnover nos. and selectivities were obsd. Porphyrin complexes in which halogen atoms were present in both the Ph and pyrrole rings showed lower catalytic activity than the complexes with ligands carrying halogen substituents only on the Ph-rings.

IT Epoxidation

Epoxidation catalysts

(polyhalogenated metalloporphyrin-catalyzed epoxidn. of propene with magnesium monoperoxyphthalate)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, polyhalogenated

metalloporphyrin-catalyzed epoxidn. of propene with magnesium monoperoxyphthalate)

L1 ANSWER 107 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:457409 HCAPLUS

DOCUMENT NUMBER: 125:142326

TITLE: Reactions of iron(III) porphyrins with oxidants. Structure-reactivity studies

AUTHOR(S): Nguyen, Cattien V.; Mascharak, Pradip K.

CORPORATE SOURCE: Univ. of California, Santa Cruz, CA, USA

SOURCE: Chemtracts: Inorganic Chemistry (1995), 7(2), 134-138

CODEN: CICHED; ISSN: 1051-7227

PUBLISHER: Data Trace Chemistry Publishers

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB The title research of T. G. Traylor, C. Kim, J. L. Richards, F. Xu, and C. L. Perrin (1995) is reviewed with commentary and 8 refs.

IT **Oxidation catalysts**

(iron(III) porphyrins as oxidn. catalysts)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**iron complexes**, iron(III) porphyrins as oxidn.

catalysts)

L1 ANSWER 108 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1996:457408 HCAPLUS
 DOCUMENT NUMBER: 125:142325
 TITLE: Kharasch and metalloporphyrin catalysis in the functionalization of alkanes, alkenes, and alkylbenzenes by t-BuOOH. Free radical mechanisms, solvent effect, and relationship with the Gif reaction
 AUTHOR(S): Mayer, James M.
 CORPORATE SOURCE: Univ. of Washington, Washington, DC, USA
 SOURCE: Chemtracts: Inorganic Chemistry (1995), 7(2), 128-133
 CODEN: CICHED; ISSN: 1051-7227
 PUBLISHER: Data Trace Chemistry Publishers
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: English

AB The title research of F. Minisci, F. Fontana, S. Araneo, F. Recupero, S. Banfi, and S. Quici (1995) is reviewed with commentary and 7 refs.

IT **Oxidation catalysts**
 (Kharasch and metalloporphyrin catalysis in the functionalization of alkanes, alkenes, and alkylbenzenes by t-BuOOH)

IT **Porphyrins**
 RL: CAT (Catalyst use); USES (Uses)
 (metal complexes, Kharasch and metalloporphyrin catalysis in the functionalization of alkanes, alkenes, and alkylbenzenes by t-BuOOH)

L1 ANSWER 109 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1996:446559 HCAPLUS
 DOCUMENT NUMBER: 125:114607
 TITLE: Use of synthetic metalloporphyrin catalysts for preparation and prediction of drug oxidative metabolites

INVENTOR(S): Chorghade, Mukund S.; Dolphin, David H.; Hill, David R.; Hino, Fumio; Lee, Elaine C.

PATENT ASSIGNEE(S): Abbott Laboratories, USA

SOURCE: PCT Int. Appl., 26 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9608455	A2	19960321	WO 1995-US11522	19950914
WO 9608455	A3	19960613		
W: CA, JP				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5760216	A	19980602	US 1995-520842	19950912
CA 2195873	AA	19960321	CA 1995-2195873	19950914
EP 781261	A2	19970702	EP 1995-933078	19950914
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
JP 10507442	T2	19980721	JP 1995-509745	19950914
PRIORITY APPLN. INFO.:			US 1994-306801	19940915
			US 1995-520842	19950912
			WO 1995-US11522	19950914

AB Systematic synthesis of oxidative metabolites of a drug candidate compd. involves reacting samples of the drug candidate with a series of combinations of a synthetic metalloporphyrin (SMP) with a synthetic metalloporphyrin co-oxidant in the presence of a suitable solvent for .1toreq.24 h at 0.degree. to reflux. Thus, aminopyrine hydrochloride was stirred with iodosobenzene and metalloporphyrin (I) in H2O/MeCN to give 2,3-dimethyl-4-methylamino-1-phenyl-3-pyrazolin-5-one, 4-amino-2,3-dimethyl-1-phenyl-3-pyrazolin-5-one, 4-formylamino-2,3-dimethyl-1-phenyl-3-pyrazolin-5-one, 2,3-dimethyl-4-hydroxyamino-1-phenyl-3-pyrazolin-5-one, 4-dimethylamino-3-hydroxymethyl-2-methyl-1-phenyl-3-pyrazolin-5-one, 4-dimethylamino-2,3-dimethyl-1-phenyl-3-pyrazolin-5-one, 4-N-oxide, 4-dimethylamino-2,3-dimethyl-1-(4-hydroxyphenyl)-3-pyrazolin-5-one, 4-formylamino-2-methyl-1-phenyl-3-pyrazolin-5-one, and 4-formylamino-3-hydroxymethyl-2-methyl-1-phenyl-3-pyrazolin-5-one.

IT **Oxidation catalysts**

(metalloporphyrins; use of synthetic metalloporphyrin catalysts for prepn. and prediction of drug oxidative metabolites)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(**metal complexes**, use of synthetic metalloporphyrin catalysts for prepn. and prediction of drug oxidative metabolites)

L1 ANSWER 110 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:387011 HCAPLUS

DOCUMENT NUMBER: 125:141811

TITLE: Metalloporphyrins as catalysts in oxidation processes

AUTHOR(S): Poltowicz, Jan; Mlodnicka, Teresa

CORPORATE SOURCE: Instytut Katalizy i Fizykochemii Powierzchni, PAN, Krakow, 30-259, Pol.

SOURCE: Wiadomosci Chemiczne (1995), (Biblioteka, Metalloporfiryny jako Katalizatory Procesow Utleniania), 36 pp.

CODEN: WICHAP; ISSN: 0043-5104

PUBLISHER: Zaklad Narodowy imienia Ossolinski

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Polish

AB A review with 162 refs. including, e.g. oxidn. of hydrocarbons with amine N-oxides, with H2O2, or with KHSO3 (oxone) in the presence of metalloporphyrins as catalysts.

IT **Oxidation catalysts**

(metalloporphyrins as catalysts in oxidn. processes)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, metalloporphyrins as catalysts in oxidn. processes)

L1 ANSWER 111 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:348237 HCAPLUS

DOCUMENT NUMBER: 125:124771

TITLE: Reactivity of polyhalogenated and zeolite-encapsulated metalloporphyrins in oxidation with dioxygen

AUTHOR(S): Battioni, P.; Iwanejko, R.; Mansuy, D.; Mlodnicka, T.; Poltowicz, J.; Sanchez, F.

CORPORATE SOURCE: Laboratoire de Chimie et Biochimie Pharmacologiques et Toxicologiques, Universite Rene Descartes, Paris, Fr.

SOURCE: Journal of Molecular Catalysis A: Chemical (1996),

109(2), 91-98
CODEN: JMCCF2; ISSN: 1381-1169
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Catalytic activity of some halogenated and perhalogenated metalloporphyrins in the reaction of cyclohexane oxidn. with dioxygen in the presence of aldehyde have been investigated. Also, the effects derived from encapsulation of some metalloporphyrins in zeolite micropores and their influence on the reaction course have been examd. Both, the changes in the structure and the encapsulation have been found to exert significant effect on the catalyst stability, activity and selectivity. From the changes in the distribution of the main reaction products some important conclusions concerning the reaction mechanism are drawn.

IT **Oxidation catalysts**

(reactivity of polyhalogenated and zeolite-encapsulated metalloporphyrins in oxidn. with dioxygen)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, reactivity of polyhalogenated and zeolite-encapsulated metalloporphyrins in oxidn. with dioxygen)

L1 ANSWER 112 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:294080 HCAPLUS

DOCUMENT NUMBER: 125:58022

TITLE: A free-radical mechanism in a novel metalloporphyrin-catalyzed oxidation of phenols by t-BuOOH

AUTHOR(S): Brovo, Anna; Fontana, Francesca; Minisci, Francesco

CORPORATE SOURCE: Dip. Chim. Politecnico, Milan, I-20131, Italy

SOURCE: Chemistry Letters (1996), (5), 401-402

CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Nippon Kagakkai

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Metalloporphyrins, a chem. model of cytochrome P 450, catalyze the oxidn. of phenols with the para-position free to the corresponding p-quinones. Evidences of a free-radical mechanism are reported, including the results obtained with p-cresol.

IT Oxidation

Oxidation catalysts

(free-radical mechanism in metalloporphyrin catalyzed oxidn. of phenols by t-BuOOH)

IT **16456-81-8**, Iron tetraphenylporphyrin chloride 91463-17-1

RL: **CAT (Catalyst use)**; USES (Uses)

(free-radical mechanism in metalloporphyrin catalyzed oxidn. of phenols by t-BuOOH)

L1 ANSWER 113 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:209128 HCAPLUS

DOCUMENT NUMBER: 124:343002

TITLE: Porphyrins and metalloporphyrins in chemical and photochemical catalysis. 1. Oxidative reactions

AUTHOR(S): Ion, Rodica Mariana; Ureche, Adrian Fotea; Socoteanu, Radu; Licsandru, Dumitru

CORPORATE SOURCE: Photochemistry Laboratory, ZECASIN S.A., Bucharest, 202, Rom.

SOURCE: Progress in Catalysis (1995), 4(2), 47-54
CODEN: POCTEU; ISSN: 1220-8698
PUBLISHER: Zecasin
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The catalytic oxidn. of satd. and unsatd. hydrocarbons represent one of the most interesting possibilities for recuperation of oil and natural resources. Synthetic porphyrins are now a meeting point for inorg. chem., catalysis, pharmacol. and mol. biol. The porphyrins and metalloporphyrins are very versatile catalysts which can be used in many different oxidn. reactions (olefin epoxidns., alkane hydroxylations, pollutants oxidns.). Combined efforts in such an interdisciplinary area will probably produce new applications of metalloporphyrins chem. In all these areas, different factors exist involved in such catalytic processes:- the oxidant (several oxygen donors can be used), the central metal (iron, manganese), the porphyrin ligand (substitutes are modifying steric and electronic effects), the proximal ligand (halide anion, pyridine or imidazole) and/or the substrate itself (with high or low redox potential). This symposium paper presents some catalytic processes (hydroxylation, epoxidn., degrdn. of lignin or different pollutants) using porphyrins and metalloporphyrins as catalysts.

IT Oxidation

Oxidation, photochemical

Oxidation catalysts

(porphyrin and metalloporphyrin catalysts in chem. and photochem. oxidns.)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(**metal complexes**, porphyrin and metalloporphyrin catalysts in chem. and photochem. oxidns.)

IT **Oxidation catalysts**

(photochem., porphyrin and metalloporphyrin catalysts in chem. and photochem. oxidns.)

L1 ANSWER 114 OF 344 HCAPLUS* COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:103134 HCAPLUS

DOCUMENT NUMBER: 124:218485

TITLE: The mechanism of catalytic hydrocarbon oxidation by molecular oxygen and halogenated ruthenium and iron porphyrins

AUTHOR(S): Birnbaum, Eva Rachel

CORPORATE SOURCE: California Institute of Technology, Pasadena, CA, USA

SOURCE: (1995) 355 pp. Avail.: Univ. Microfilms Int., Order No. DA9601103

From: Diss. Abstr. Int., B 1995, 56(9), 4876

DOCUMENT TYPE: Dissertation

LANGUAGE: English

AB Unavailable

IT **Oxidation catalysts**

(catalytic hydrocarbon oxidn. by oxygen and halogenated ruthenium and iron porphyrinato complexes)

IT **Porphyrins**

RL: **CAT (Catalyst use); SPN (Synthetic preparation); PREP**

(Preparation); **USES (Uses)**

(**iron complexes**, catalytic hydrocarbon oxidn. by oxygen and halogenated ruthenium and iron porphyrinato complexes)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(**ruthenium complexes**, catalytic hydrocarbon oxidn. by oxygen and halogenated ruthenium and iron porphyrinato complexes)

L1 ANSWER 115 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:83518 HCAPLUS
DOCUMENT NUMBER: 124:248558
TITLE: Advances in supported metalloporphyrins
AUTHOR(S): You, Jinsong; Lan, Zhongwei; Yu, Xiaoqi
CORPORATE SOURCE: Dep. Chem., Sichuan Univ., Chengdu, 610064, Peop. Rep. China
SOURCE: Shiyong Huagong (1996), 25(1), 56-61
CODEN: SHHUE8; ISSN: 1000-8144
PUBLISHER: Beijing Huagong Yanjiuyuan
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Chinese
AB A review with 33 refs. on supported metalloporphyrins and their use as catalysts for epoxidn. of olefins.
IT **Epoxidation catalysts**
(advances in supported metalloporphyrins)
IT **Porphyrins**
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**metal complexes**, advances in supported metalloporphyrins)

L1 ANSWER 116 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:72102 HCAPLUS
DOCUMENT NUMBER: 124:271553
TITLE: Perfluoroalkylporphyrin complexes as active catalysts for the reaction of isobutane with oxygen and the decomposition of tert-butyl hydroperoxide
AUTHOR(S): Wijesekera, Tilak P.; Lyons, James E.; Ellis, Paul E., Jr.
CORPORATE SOURCE: Res. Dev. Dep., Sun Company, Marcus Hook, PA, 19061, USA
SOURCE: Catalysis Letters (1995), Volume Date 1996, 36(1,2), 69-73
CODEN: CALEER; ISSN: 1011-372X
PUBLISHER: Baltzer
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new family of metalloporphyrin complexes having perfluoroalkyl groups in the meso-positions of the ring are active catalysts for the oxidn. of isobutane to tert-Bu alc., TBA, and for the decompn. of tert-Bu hydroperoxide to TBA. This discovery extends the limited no. of meso-substituents that can be used to enhance catalytic activity and fits the postulate that groups that withdraw electrons from the porphyrin periphery give rise to active catalysts for alkane oxidn. The perfluoroalkyl groups also confer oxidative stability, hydrophobicity and lower cost to the catalyst.
IT Decomposition catalysts
Oxidation catalysts
(perfluoroalkylporphyrin complexes as active catalysts for reaction of isobutane with oxygen and decompn. of tert-Bu hydroperoxide)
IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**
(**metal complexes**, perfluoroalkylporphyrin complexes
as active catalysts for reaction of isobutane with oxygen and decompn.
of tert-Bu hydroperoxide)

L1 ANSWER 117 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:62487 HCAPLUS
DOCUMENT NUMBER: 124:201399
TITLE: Metal Complex-Catalyzed Epoxidation of Olefins by
Dioxygen with Co-Oxidation of Aldehydes. A Mechanistic
Study
AUTHOR(S): Nam, Wonwoo; Kim, Hyo Jin; Kim, Seong Hoon; Ho,
Raymond Y. N.; Valentine, Joan Selverstone
CORPORATE SOURCE: Department of Chemistry, Ewha Womans University,
Seoul, 120-750, S. Korea
SOURCE: Inorganic Chemistry (1996), 35(4), 1045-9
CODEN: INOCAJ; ISSN: 0020-1669
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Mechanistic studies of the oxidn. of olefins by dioxygen plus aldehyde in
the presence of metal complexes such as metalloporphyrins and metal cyclam
complexes were carried out. Epoxides were the predominant products, with
trace amts. of allylic oxidn. products. Cis-stilbene was oxidized to a
mixture of cis- and trans-stilbene oxides. The principal role of the metal
complexes is to aid in the initiation step for the free radical autoxidn.
of the aldehyde; acylperoxy radicals generated in the autoxidn. reaction
(or metal complexes formed by complexation of the acylperoxy radicals) are
the active epoxidizing agents.

IT **Epoxidation catalysts**
(transition metal porphyrin and cyclam complexes; metal
complex-catalyzed epoxidn. of olefins by dioxygen with co-oxidn. of
aldehydes with study of mechanism)

IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(**transition metal complexes**, metal
complex-catalyzed epoxidn. of olefins by dioxygen with co-oxidn. of
aldehydes with study of mechanism)

IT **14074-80-7**, (Tetraphenylporphyrinato)zinc **14172-90-8**
14172-91-9, (Tetraphenylporphyrinato)copper 14172-92-0,
(Tetraphenylporphyrinato)nickel **16456-81-8**,
Chloro(tetraphenylporphyrinato)iron 28110-70-5,
Chloro(tetraphenylporphyrinato)chromium 32195-55-4,
Chloro(tetraphenylporphyrinato)manganese 46365-93-9 52304-87-7,
(Cyclam)copper(2+) 60165-74-4, (Cyclam)zinc(2+) 61872-12-6,
(Cyclam)cobalt(2+) 100926-51-0, (Cyclam)iron(2+) 135284-81-0,
(Cyclam)manganese(2+)
RL: **CAT (Catalyst use); USES (Uses)**
(metal complex-catalyzed epoxidn. of olefins by dioxygen with co-oxidn.
of aldehydes with study of mechanism)

L1 ANSWER 118 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:46478 HCAPLUS
DOCUMENT NUMBER: 124:201272
TITLE: Cofacial bis(metallo)diporphyrins as potential
molecular catalysts for multielectron reductions and
oxidations of small molecules

AUTHOR(S): Collman, James P.; Wagenknecht, Paul S.; Hutchison, James E.
CORPORATE SOURCE: Department Chemistry, Stanford University, Stanford, CA, 94305-5080, USA
SOURCE: Angewandte Chemie (1994), 106(15/16), 1620-39
CODEN: ANCEAD; ISSN: 0044-8249
PUBLISHER: VCH
DOCUMENT TYPE: Journal; General Review
LANGUAGE: German

AB A review with 95 refs.

IT **Oxidation catalysts**
Redox reaction catalysts
Reduction catalysts
(cofacial bis(metallo)diporphyrins as potential mol. catalysts for multielectron redns. and oxidns. of small mols.)

IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, cofacial bis(metallo)diporphyrins as potential mol. catalysts for multielectron redns. and oxidns. of small mols.)

L1 ANSWER 119 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:37001 HCAPLUS

DOCUMENT NUMBER: 124:157124

TITLE: Modification of metalloporphyrin catalysts by thermoactivation

AUTHOR(S): Belkina, N. V.; Solov'eva, A. B.; Skachkova, V. K.; Zarkhina, T. S.; Shatalova, O. V.; Krivandin, A. V.

CORPORATE SOURCE: Inst. Khim. Fiz. im. Semenova, Moscow, Russia

SOURCE: Zhurnal Fizicheskoi Khimii (1995), 69(12), 2170-5
CODEN: ZFKHA9; ISSN: 0044-4537

PUBLISHER: MAIK Nauka

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The kinetics of structural transformations occurring in thermal treatment (300-450.degree.) of manganese and cobalt tetra-Ph porphyrin complexes and of copper tetrapyrrolylporphyrinate used as catalysts in steroid olefin hydroxylation and primary alc. oxidn. The thermal treatment leads to lower soly. of the catalyst in org. solvents and formation of larger crystallites while the catalytic activity is being preserved up to the annealing temp. (360-380.degree.).

IT Catalysts and Catalysis
Oxidation catalysts
(modification of metalloporphyrin catalysts by thermoactivation)

IT **14172-90-8** 31004-82-7 136216-25-6

RL: **CAT (Catalyst use)**; USES (Uses)
(modification of metalloporphyrin catalysts by thermoactivation)

L1 ANSWER 120 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:12236 HCAPLUS

DOCUMENT NUMBER: 124:175696

TITLE: A novel polymeric catalyst from hemin for oxidation reactions

AUTHOR(S): Lo Balbo, Alfredo; Dall'Orto, Viviana Campo; Sobral, Santiago; Grasselli, Mariano; Rezzano, Irene

CORPORATE SOURCE: Fac. Farmacia Bioquimica, Univ. Buenos Aires, Buenos Aires, 1113, Argent.

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry
(1996), 34(2), 305-7
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: Wiley
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The electrooxidn. of Co and Ni complexes of protoporphyrin IX in CH_2Cl_2 led to the deposition of electroactive porphyrinic polymer films on the electrode surface. Similarly, Fe-protoporphyrin IX and Ni-protoporphyrin IX yielded a polymeric matrix by copolymer. The oxidn. of cis-stilbene catalyzed by the latter copolymer gave the cis-epoxide in 50% yield.

IT **Oxidation catalysts**
(stereoselective, oxidn. of stilbene with polymeric protoporphyrin metal complexes)

IT **14875-96-8P**, Iron protoporphyrin IX
RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(nickel protoporphyrin IX copolymer; oxidn. of stilbene with polymeric protoporphyrin metal complexes)

L1 ANSWER 121 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:1004100 HCAPLUS

DOCUMENT NUMBER: 124:175439

TITLE: Influence of additive reagent and reaction medium on the catalytic characteristics of TPPFeCl in the biomimetic oxidation of cyclohexane with PhIO

AUTHOR(S): Jiang, Du-Xiao; Gui, Ming-De; Zhu, Shen-Jie

CORPORATE SOURCE: Dep. Chem., Nankai Univ., Tianjin, 300071, Peop. Rep. China

SOURCE: Gaodeng Xuexiao Huaxue Xuebao (1995), 16(7), 1055-8

CODEN: KTHPDM; ISSN: 0251-0790

PUBLISHER: Gaodeng Jiaoyu Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The influence of additive iso-Pr alc., pyridine, hydrochloric acid and sodium hydrate in different quantities on the catalytic characteristics of chlorotetraphenylporphinatoiron (TPPFeCl) and $(\text{TPPFe})_2\text{O}$ in the title reaction was studied. It is found that iso-Pr alc. and pyridine in small amts. could increase the yield of oxidn. product of cyclohexane. The presence of cyclohexanol could give a longer catalytic lifetime of TPPFeCl . The catalytic oxidn. of cyclohexane could be favorable as a small amt. of aq. NaOH was added; but unfavorable as hydrochloride acid was added. This reaction was unfavorable either when the polarity of solvent increased. One of the oxidn. products of cyclohexane, cyclohexanone, was verified to be mainly produced by oxidizing cyclohexanol directly by PhIO . The presence of TPPFeCl was unfavorable to form cyclohexanone.

IT Oxidation

Oxidation catalysts

(catalytic characteristics of chlorotetraphenylporphinatoiron in biomimetic oxidn. of cyclohexane with PhIO)

IT 67-63-0, Isopropanol, uses 110-86-1, Pyridine, uses 1310-73-2, Sodium hydroxide (NaOH), uses 7647-01-0, Hydrochloric acid, uses 12582-61-5 **16456-81-8**, Chlorotetraphenylporphinatoiron

RL: **CAT (Catalyst use)**; USES (Uses)

(catalytic characteristics of chlorotetraphenylporphinatoiron in biomimetic oxidn. of cyclohexane with PhIO)

L1 ANSWER 122 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:1004099 HCAPLUS
DOCUMENT NUMBER: 124:175438
TITLE: Syntheses of metalloporphyrins and biomimesis for
cytochrome P-450. (XIV). Catalysis of TPPCo(II) for
cyclohexane monooxygenation
AUTHOR(S): Chen, Xin-Bin; Guo, Can-Cheng; Liang, Ben-Xi; Rao,
Zong-Hai; Yang, Zhi-Guo
CORPORATE SOURCE: Dep. Chem. Chem. Eng., Hunan Univ., Changsha, 410082,
Peop. Rep. China
SOURCE: Gaodeng Xuexiao Huaxue Xuebao (1995), 16(7), 1051-4
CODEN: KTHPDM; ISSN: 0251-0790
PUBLISHER: Gaodeng Jiaoyu Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB The catalysis of tetraphenylporphyrinatocobalt [TPPCo(II)] for cyclohexane
monooxygenation with PhIO was reported. The kinetics, the temp. effect
and the effect of axial ligands of the reactions were studied. The
results show that TPPCo(II) with axial ligand pyridine can catalyze
cyclohexane monooxygenation with PhIO and that the catalytic properties
are related to the reaction temp. and the quantity of pyridine. The rates
of the reactions can increase with the increase of the reaction temp.
There is Arrhenius relationship between the rate consts. of the reactions
and the reaction temp. The yields of the products decrease with the
increase of the reaction temp. The catalytic effect of TPPCo(II) is the
best when the quantity of pyridine is 50 times that of TPPCo(II).
IT Kinetics of oxidation
Oxidation
Oxidation catalysts
(catalysis of tetraphenylporphyrinatocobalt for cyclohexane
monooxygenation)
IT 110-86-1, Pyridine, uses 14172-90-8 16456-81-8,
Chlorotetraphenylporphyrinatoiron
RL: CAT (Catalyst use); USES (Uses)
(catalysis of tetraphenylporphyrinatocobalt for cyclohexane
monooxygenation)

L1 ANSWER 123 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:963351 HCAPLUS
DOCUMENT NUMBER: 124:146412
TITLE: Substituent effects on chloro meso-tetra-ortho-
alkylphenylporphinato iron catalyzed biomimetic
oxidation of cyclohexane
AUTHOR(S): Zhu, Shen-Jie; Gui, Ming-De; Jiang, Du-Xiao
CORPORATE SOURCE: Dep. of Chemistry, Nankai Univ., Tianjin, 300071,
Peop. Rep. China
SOURCE: Chinese Journal of Chemistry (1995), 13(5), 442-7
CODEN: CJOCEV; ISSN: 1001-604X
PUBLISHER: Science Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Six sterically hindered chloro meso-tetra-ortho-alkylphenylporphinato
irons [T(o-R)PPFe(III)Cl, R = Me, Et, Pr, i-Pr, Bu, t-Bu] were synthesized
and used to catalyze the monooxygenation of cyclohexane with PhIO. Both
the yields of cyclohexanol and the relative rates of monooxygenation of
cyclohexane catalyzed by T(o-R)PPFe(III)Cl were higher than those of

TPPFe(III)Cl resp. The order of the yields (%) of cyclohexanol and the rate of cyclohexanol formation in the monooxygenation of cyclohexane catalyzed by T(o-R)PPFe(III)Cl for the different substituents are: i-Pr(58) > Pr(52) > Me(51) > Bu(48) > t-Bu(46) > H(35) and i-Pr > Et > t-Bu > Pr .gtoreq. Me .gtoreq. Bu .gtoreq. H resp. The special steric effect on the catalytic character of these different alkyl substituents in T(o-R)PPFe(III)Cl is proposed.

IT Kinetics of oxidation

Oxidation

Oxidation catalysts

Steric effect

Steric hindrance

Substituent effect

(substituent effects on chloro meso-tetra-ortho-alkylphenylporphinato iron catalyzed biomimetic oxidn. of cyclohexane to cyclohexanone)

IT **16456-81-8P** 52155-50-7P 160855-91-4P 160855-92-5P
160855-93-6P 160855-94-7P 160855-95-8P

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(substituent effects on chloro meso-tetra-ortho-alkylphenylporphinato iron catalyzed biomimetic oxidn. of cyclohexane)

L1 ANSWER 124 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:962972 HCAPLUS

DOCUMENT NUMBER: 124:145472

TITLE: Catalytic oxidation of cyclohexene to cyclohexanone by palladium compounds

AUTHOR(S): Li, Huaming; Ye, Xingkai; Wu, Yue

CORPORATE SOURCE: Changchun Inst. Appl. Chem., Chinese Acad. Sci., Changchun, 130022, Peop. Rep. China

SOURCE: Yingyong Huaxue (1995), 12(5), 15-19
CODEN: YIHUED; ISSN: 1000-0518

PUBLISHER: Yingyong Huaxue Bianji Weiyuanhui

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Cyclohexene has been oxidized to cyclohexanone catalytically by catalyst systems of Pd(OAc)₂/hydroquinone with metallophthalocyanine (MPC; M = Fe, Cr, Co) and chlorometalloporphyrin (MTPPCl; M = Fe, Cr, Mn) in an acidic aq. soln. of acetonitrile. The best results were obtained by using Pd(OAc)₂/hydroquinone/phthalocyanine iron system. The yield of cyclohexanone was 84% with selectivity of 98% on 30 min reaction. Some factors influencing the activity of the catalyst have been examd.

IT Oxidation

Oxidation catalysts

(catalytic oxidn. of cyclohexene to cyclohexanone by palladium compds.)

IT 123-31-9, Hydroquinone, uses 132-16-1, Phthalocyanine iron 3317-67-7, Phthalocyanine cobalt 3375-31-3, Palladium diacetate 14285-60-0, Chromium, [29H,31H-phthalocyaninato(2-)-N29,N30,N31,N32]-, (SP-4-1)-
16456-81-8 28110-70-5, Chromium, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-N21,N22,N23,N24]-, (SP-5-12)- 32195-55-4, Manganese, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-N21,N22,N23,N24]-, (SP-5-12)-

RL: **CAT (Catalyst use)**; USES (Uses)

(catalytic oxidn. of cyclohexene to cyclohexanone by palladium compds.)

L1 ANSWER 125 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:952970 HCAPLUS

DOCUMENT NUMBER: 124:67840
TITLE: Synthesis and catalytic performance of
polymer-supported metalloporphyrins bearing polyglycol
chains
AUTHOR(S): Yu, Xiaoqi; Wei, Tingxian; Lan, Zhongwei; You,
Jingsong; Zhao, Huaming
CORPORATE SOURCE: Dep. Chem., Sichuan Univ., Chengdu, 610064, Peop. Rep.
China
SOURCE: Fenzi Cuihua (1995), 9(4), 244-50
CODEN: FECUEN; ISSN: 1001-3555
PUBLISHER: Zhongguo Kexueyuan Lanzhou Huaxue Wuli Yanjiuso
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Synthesis and catalytic performance of polymer-supported metalloporphyrins bearing polyglycol chains in CH₂Cl₂/H₂O two-phase system were studied. The influence of pH values, concn. of NaOCl, axial ligands and phase transfer catalysts on the epoxidn. of styrene catalyzed by those catalysts have also been investigated. The exptl. results show that manganese (III) porphyrins bound to chloromethylated polystyrene which bears some polyglycerol chains are efficient catalysts for the epoxidn. of styrene by sodium hypochloride. The introduction of polyglycol chain increases the amt. of oxidant in the org. phase by extg. -OCl from the aq. phase. Under these conditions, the anion -OCl assocd. with the polyglycol chain is extremely reactive as an oxidant. In all factors studied exptl., the influence of pH values in aq. soln. is the greatest.

IT **Epoxidation catalysts**

(for styrene; synthesis and catalytic performance of polymer-supported metalloporphyrins bearing polyglycol chains)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, synthesis and catalytic performance of polymer-supported metalloporphyrins bearing polyglycol chains)

L1 ANSWER 126 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:798097 HCAPLUS

DOCUMENT NUMBER: 123:221607

TITLE: On the mechanism of epoxidation and hydroxylation catalyzed by iron porphyrins. Evidence for nonintersecting reaction pathways

AUTHOR(S): Groves, John T.; Gross, Zeev

CORPORATE SOURCE: Department Chemistry, Princeton University, Princeton, NJ, 08544, USA

SOURCE: NATO ASI Series, Series C: Mathematical and Physical Sciences (1995), 459 (Bioinorganic Chemistry), 39-47
CODEN: NSCSDW; ISSN: 0258-2023

PUBLISHER: Kluwer

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The oxygenation of cyclohexene to cyclohexene oxide and cyclohexen-3-ol by (O)FeIV TMP+(X) (I) at various temps. was compared with the iodosylbenzene mediated reaction catalyzed by chloro-5,10,15,20-tetramesitylporphyrinato iron(III) [FeIII(TMP)Cl]. The product ratios were found to depend on the axial ligand X of I and on the temp. in an unusual way. The results demonstrate that at least one reaction intermediate must be produced and further, that while the epoxidn. proceeds via the formation of a complex between I and the olefin, the hydroxylation reaction proceeds by a

non-intersecting reaction pathway not involving this complex. The elucidation of the mechanisms of metalloporphyrin catalyzed oxygenation of hydrocarbons and the relationships of these reactions to the catalytic functions of cytochrome P 450 continue to pose significant challenges.

IT Epoxidation

Epoxidation catalysts

Hydroxylation

Hydroxylation catalysts

(on the mechanism of epoxidn. and hydroxylation catalyzed by iron porphyrins - evidence for nonintersecting reaction pathways)

IT **Porphyrins**

RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); **CAT (Catalyst use)**; PRP (Properties); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(**iron complexes**, on the mechanism of epoxidn. and hydroxylation catalyzed by iron porphyrins - evidence for nonintersecting reaction pathways)

L1 ANSWER 127 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:795049 HCAPLUS

DOCUMENT NUMBER: 123:305197

TITLE: Ruthenium porphyrin complexes, method of their preparation and their use in catalytic epoxidation of olefins

INVENTOR(S): Scharbert, Bernd

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 14 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4343268	A1	19950622	DE 1993-4343268	19931217

PRIORITY APPLN. INFO.: DE 1993-4343268 19931217

OTHER SOURCE(S): MARPAT 123:305197

AB RuL(CO) (H₂L = I; R = H, Bu, Ph, 3,5-(Me₃C)₂C₆H₃, 4-BuC₆H₄, 4-nonylphenyl) are prepd. from H₂L and Ru(acac)₃ under N in 1,2,4-trichlorobenzene. RuL(MeOH)(CO) and RuLO₂ (R = 4-BuC₆H₄) were also prepd. RuL(CO) were use as catalysts for the epoxidn. of norbornene, 1-octene and propene with O, giving 2,3-epoxyborbornane, 1,2-epoxyoctane and 1,2-epoxypropane, resp.

IT **Epoxidation catalysts**

(ruthenium carbonyl porphyrinato complexes for olefins)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(**ruthenium complexes**, prepn. as epoxidn. catalyst for olefins)

L1 ANSWER 128 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:792316 HCAPLUS

DOCUMENT NUMBER: 123:202779

TITLE: Effect of flavonoids on the photooxidation of fats. A study on their activity as singlet molecular oxygen

- [O2(1.DELTA.g)] generators and quenchers
AUTHOR(S): Criado, Susana; Bertolotti, Sonia G.; Soltermann, A. T.; Avila, V.; Garcia, N. A.
CORPORATE SOURCE: Departamento de Quimica y Fisica, Universidad Nacional de Rio Cuarto, Rio Cuarto, 5800, Argent.
SOURCE: Fett Wissenschaft Technologie (1995), 97(7/8), 265-9
CODEN: FWTEEG; ISSN: 0931-5985
PUBLISHER: Konradin-Industrieverlag
DOCUMENT TYPE: Journal
LANGUAGE: English
- AB The protective effect of the polyhydroxyflavones fisetin (I) and baicalein (II) on the sensitized [O2(1.DELTA.g)]-mediated photooxidn. of fats was investigated through a kinetic study. These flavonoids at concns. of a few ppm efficiently inhibit the photoperoxidn. of linoleic acid, which was chosen as an example of photooxidizable fat. This property was attributed to the ability of I and II to quench photochem. generated O2(1.DELTA.g). The rate consts. for the quenching were 1.9 and 1.4 .times. 10⁸ M⁻¹ s⁻¹ for I and II, resp. The ratio between the overall and the chem. rate consts. were in the order of 0.01, indicating that the flavones are practically not consumed in the process of O2(1.DELTA.g) quenching. The presence of the OH in the arom. rings of the hydroxyflavones confer to these compds. the ability as O2(1.DELTA.g) quenchers. The parent compd. flavone does not quench that O excited species. Only flavone generates O2(1.DELTA.g) upon direct irradiation, at 337 nm, in the absence of added sensitizers, with a quantum yield of 0.16. I and II were inefficient for such a process. This fact constitutes a very convenient property regarding the protective (antioxidative) activity of the hydroxyflavones.
- IT **Oxidation catalysts**
(photochem., photosensitizers; kinetics of photooxidn. of model fats in presence of flavonoid antioxidants)
- IT 11121-48-5, Rose Bengal **14074-80-7**, Zinc tetraphenylporphyrin
RL: **CAT (Catalyst use)**; USES (Uses)
(photosensitizer; kinetics of photooxidn. of model fats in presence of flavonoid antioxidants)
- L1 ANSWER 129 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:785639 HCAPLUS
DOCUMENT NUMBER: 124:8258
TITLE: Studies on the biomimetic oxidation catalyzed by the model compound of cytochrome P-450(V). The influence of substituent R in T(R-P)PFe(III)Cl on the monooxygenation of cyclohexane
AUTHOR(S): Jian, Du-Xiao; Gu, Chen; Gui, Ming-De; Zhu, Shen-Jie
CORPORATE SOURCE: Dep. of Chemistry, Nankai University, Tianjin, 300071, Peop. Rep. China
SOURCE: Gaodeng Xuexiao Huaxue Xuebao (1995), 16(6), 909-12
CODEN: KTHPDM; ISSN: 0251-0790
PUBLISHER: Gaodeng Jiaoyu Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
- AB The influences of monosubstitution at Ph rings in a series of tetrakis(substituted phenyl)porphyratoiron(III) chlorides [T(R-P)PFe(III)Cl; R = o-, m-, p-Me, MeO, Cl, Br, iodo, NO2, o-tert-Bu, p-tert-Bu, o-NH2, Et, Me2CH] on the biomimetic catalytic monooxygenation of cyclohexane with PhIO were studied. The yields of cyclohexanol were increased by the electron-withdrawing substituents R in these catalysts T(R-P)PFe(III)Cl. A fair linear correlation between the yield of

cyclohexanol and para substituent const. .sigma.p was obsd. The steric effect of all ortho substituents in T(R-P)PFe(III)Cl increased the yield of cyclohexanol sufficiently.

IT Oxidation

Oxidation catalysts

Substituent effect

(substituent effect on monooxygenation of cyclohexane catalyzed by tetrakis(substituted phenyl)porphinatoiron(III) chlorides)

IT **16456-81-8P** 19496-18-5P 36965-70-5P 36995-20-7P
52155-49-4P 52155-50-7P 64413-43-0P 64413-46-3P 64413-47-4P
64413-51-0P 85529-15-3P 90837-94-8P 97775-27-4P 118115-08-5P
120494-83-9P 122745-47-5P 138072-33-0P 152249-56-4P 155677-09-1P
160855-91-4P 160855-93-6P 160855-95-8P 171192-89-5P 171192-90-8P

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(substituent effect on monooxygenation of cyclohexane catalyzed by tetrakis(substituted phenyl)porphinatoiron(III) chlorides)

L1 ANSWER 130 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:744382 HCAPLUS

DOCUMENT NUMBER: 123:113035

TITLE: Thermal oxidation of polyacrylonitrile in the presence of cobalt tetraphenylporphyrin

AUTHOR(S): Skachkova, V. K.; Belkina, N. V.; Shibryaeva, L. S.; Begun, B. A.

CORPORATE SOURCE: Semenov Inst. Chem. Phys., Russian Acad. Sci., Moscow, 117977, Russia

SOURCE: Vysokomolekulyarnye Soedineniya, Seriya A i Seriya B (1995), 37(5), 883-6

CODEN: VSSBEE

PUBLISHER: MAIK Nauka

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Modification of polyacrylonitrile during thermal oxidn. treatment was studied. Addns. of Co tetraphenylporphyrin (0.5-1.5%) accelerate the conversion of nitrile groups and the formation of polyconjugated structures contg. C=N groups. As a result, the peak of the thermal effect of the modification reaction shifts to lower temps., the oxygen absorption rate decreases, and the yield of volatile decompn. products decreases.

IT Heat of oxidation

Oxidation

Oxidation catalysts

(thermal oxidn. of polyacrylonitrile in presence of cobalt tetraphenylporphyrin)

IT **14172-90-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(thermal oxidn. of polyacrylonitrile in presence of cobalt tetraphenylporphyrin)

L1 ANSWER 131 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:733931 HCAPLUS

DOCUMENT NUMBER: 123:339556

TITLE: Oxidation of [60]fullerene by cytochrome P 450 chemical models

AUTHOR(S): Hamano, Takeshi; Mashino, Tadahiko; Hirobe, Masaaki

CORPORATE SOURCE: Fac. Pharmaceutical Sci., Univ. Tokyo, Tokyo, 113, Japan

SOURCE: Journal of the Chemical Society, Chemical Communications (1995), (15), 1537-8
CODEN: JCCCAT; ISSN: 0022-4936

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 123:339556

AB Reaction of [60]fullerene in cytochrome P 450 chem. model systems gives several oxidn. products; sequential epoxidn. occurs, and the second and third oxygen atoms are each introduced at a double bond adjacent to an existing epoxide.

IT Epoxidation
Epoxidation catalysts
(epoxidn. of [60]fullerene by cytochrome P 450 chem. models)

IT **16456-81-8**, Tetraphenylporphyrinatoiron(III) chloride 32073-84-0
32195-55-4 99038-25-2 119889-98-4
RL: **CAT (Catalyst use)**; USES (Uses)
(epoxidn. of [60]fullerene by cytochrome P 450 chem. models)

L1 ANSWER 132 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:719151 HCAPLUS

DOCUMENT NUMBER: 123:87349

TITLE: Fluorous multiphase catalyst or reagent systems for environmentally friendly oxidation or hydroformylation or extraction processes

INVENTOR(S): Horvath, Istvan Tamas; Rabai, Jozsef

PATENT ASSIGNEE(S): Exxon Research and Engineering Co., USA

SOURCE: Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 633062	A1	19950111	EP 1994-304877	19940704
EP 633062	B1	19990908		
R: DE, FR, GB, IT, NL				
US 5463082	A	19951031	US 1993-88706	19930708
CA 2126778	AA	19950109	CA 1994-2126778	19940627
AU 9467313	A1	19950119	AU 1994-67313	19940706
AU 673743	B2	19961121		
NO 9402563	A	19950109	NO 1994-2563	19940707
PRIORITY APPLN. INFO.:			US 1993-88706	19930708

AB Stoichiometric and catalytic chem. transformations may be carried out in soln. using novel fluorous multiphase systems (FMS). Fluorous denotes a C-F bond-rich org. mol. derived by replacing H bonded to C with F. The FMS consists of a fluorous phase contg. a fluorous solvent, typically a fluorocarbon or a fluorohydrocarbon (with or without substituent groups), and a reagent or a catalyst contg. a sufficient no. of fluorous moieties to render it preferentially sol. in the fluorous solvent and located at the interface of the fluorous and nonfluorous phases. The nonfluorous solvent may be any known org. or nonorg. solvent with limited or no soly. in the fluorous solvent and is effective for dissolving the reaction products (e.g., a nonfluorous solvent having a Hildebrand soly. parameter of at least about 18.0 MPa/2). The reaction can occur simultaneously in

the fluororous phase and at the interface of the phases. The fluororous multiphase systems facilitate the sepn. of the FMS catalyst or spent FMS reagent, providing catalysts and reagents with high product selectivity, resulting in esp. environmentally friendly processes.

IT Hydroformylation catalysts

Oxidation catalysts

RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)

(fluororous multiphase catalyst or reagent systems for oxidn. or hydroformylation or extn.)

IT 132-16-1 3317-67-7, Phthalocyaninato cobalt (II) 14055-02-8,
Phthalocyaninato nickel(II) **16456-81-8** 103249-38-3
114469-96-4 149790-22-7 165805-62-9

RL: **CAT (Catalyst use)**; TEM (Technical or engineered material use); USES (Uses)

(fluororous multiphase catalyst or reagent systems for oxidn. or hydroformylation or extn.)

L1 ANSWER 133 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:716604 HCAPLUS

DOCUMENT NUMBER: 123:338859

TITLE: Halogenated metalloporphyrin complexes as catalysts for selective reactions of acyclic alkanes with molecular oxygen

AUTHOR(S): Lyons, James E.; Ellis, Paul E., Jr.; Myers, Harry K., Jr.

CORPORATE SOURCE: Research and Developmental Department, Sun Company, Inc., Marcus Hook, PA, 19061-0835, USA

SOURCE: Journal of Catalysis (1995), 155(1), 59-73

CODEN: JCTLA5; ISSN: 0021-9517

PUBLISHER: Academic

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 123:338859

AB We have shown that halogenation of the porphyrin ring of a metalloporphyrin complex can convert a catalytically inactive material into an exceptionally active catalyst for the selective reaction of an alkane with mol. oxygen. The greater the degree of halogenation of the ring, the greater is the catalytic activity of the metal complex. The product profile, while characteristic of radical reactions, is sensitive to the nature of the metal center. Iron complexes are generally more active than those of cobalt, manganese, or chromium. The activity of iron complexes is directly related to the Fe(III)/(II) redn. potential of the porphyrin complex. There is also a similar correlation between the Fe(III)/Fe(II) redn. potential and the rate at which iron haloporphyrin complexes decomp. alkyl hydroperoxides. These iron perhaloporphyrin complexes are not only the most active known liq. phase alkane air-oxidn. catalysts, they are also the most active hydroperoxide decompn. catalysts known to date. The nature of the products formed is dependent on the structure of the aliph. substrate that is oxidized and can be rationalized by a catalytic pathway that very efficiently generates alkyl and alkoxy radicals at low temps. The relationship between the electrochem. properties of these complexes and the rates of alkane oxidn. and hydroperoxide decompn. lends insight into possible mechanisms of catalytic activity.

IT **Oxidation catalysts**

(halogenated metalloporphyrin complexes as catalysts for alkane oxidn.)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**
(**metal complexes**, halogenated metalloporphyrin complexes as catalysts for alkane oxidn. or alkyl hydroperoxide decompn.)

L1 ANSWER 134 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:705862 HCAPLUS

DOCUMENT NUMBER: 123:111190

TITLE: Versatile, highly efficient oxidations with heteroaromatic N-oxides catalyzed by ruthenium porphyrin

AUTHOR(S): Higuchi, Tsunehiko

CORPORATE SOURCE: Fac. Pharm. Sci., Univ. Tokyo, Tokyo, 113, Japan

SOURCE: Yuki Gosei Kagaku Kyokaishi (1995), 53(7), 633-44

CODEN: YGKKAE; ISSN: 0037-9980

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review with 26 refs. on synthesis of porphyrin rings and their Ru complexes, oxidn. by heteroarom. N-oxides using the Ru-porphyrin complex catalysts including its reaction mechanisms, increase of the reactivity by the addn. of acids, and effective oxidn. of alkanes and arom. rings.

IT **Oxidation catalysts**

Oxidizing agents

(oxidn. by heteroarom. N-oxides using Ru porphyrin complex catalysts)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**
(**ruthenium complexes**, oxidn. by heteroarom. N-oxides using Ru porphyrin complex catalysts)

L1 ANSWER 135 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:636724 HCAPLUS

DOCUMENT NUMBER: 123:285286

TITLE: Cyclohexane oxidations by an iron-palladium bicatalytic system; soluble catalysts and polymer supported catalysts

AUTHOR(S): Jun, Ki-Won; Shim, Eun-Kyung; Park, Sang-Eon; Lee, Kyu-Wan

CORPORATE SOURCE: Catalysis Res. Div., Korea Res. Inst. Chem. Technol., Taejon, 305-600, S. Korea

SOURCE: Bulletin of the Korean Chemical Society (1995), 16(5), 398-400

CODEN: BKCSDE; ISSN: 0253-2964

PUBLISHER: Korean Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Selective oxidn. of cyclohexane in acetone soln. has been studied using iron catalysts with hydrogen peroxide in-situ produced by palladium catalyst. Iron tetraphenylporphyrin chloride shows the highest activity among the tested chlorides and porphyrin complexes of some metals of the first transition series. Iron chloride and iron tetraphenylporphyrin chloride were supported on four kinds of 4-vinylpyridine copolymer with styrene or divinyl-benzene. Nitrogen 1s photoelectron spectra give the evidence that pyridyl nitrogens of the 4-vinyl pyridine copolymer act as ligands to bind iron species. The copolymer with styrene is the most efficient support for the binding because its soly. in catalyst prepn. solvent (methylene chloride) gives the pyridyl group advantage to contact

with the iron catalysts. However, better catalytic activity per iron atom could be obtained with a rigid crosslinked polymer due to active site isolation.

IT **Oxidation catalysts**

(selective, iron-palladium bicatalytic system for cyclohexane)

IT 7440-05-3, Palladium, uses 7758-94-3D, Iron dichloride, polymer-supported **16456-81-8D**, Iron tetraphenylporphyrin chloride, polymer-supported

RL: **CAT (Catalyst use)**; USES (Uses)

(selective oxidn. of cyclohexane by an iron-palladium bicatalytic system)

L1 ANSWER 136 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:603027 HCAPLUS

DOCUMENT NUMBER: 123:197926

TITLE: Alkane oxidation catalysis by metal-porphyrin complexes

AUTHOR(S): Karasevich, E. I.

CORPORATE SOURCE: Inst. Khim. Fiz. im. Semenova, Moscow, Russia

SOURCE: Rossiiskii Khimicheskii Zhurnal (1995), 39(1), 31-41

CODEN: RKZHEZ

PUBLISHER: Rossiiskoe Khimicheskoe Obshchestvo im. D. I. Mendeleeva

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Russian

AB The biomimetic approach to the search for purely chem. catalysts of the selective oxidn. of alkanes is reviewed, with 82 refs. Main types of metal porphyrin chem. models of natural monooxygenases based on cytochrome P 450 are considered.

IT **Oxidation catalysts**

(alkane oxidn. catalysis by metal-porphyrin complexes)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, alkane oxidn. catalysis by metal-porphyrin complexes)

L1 ANSWER 137 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:581422 HCAPLUS

DOCUMENT NUMBER: 123:256005

TITLE: Peculiarities of the action of metal phthalocyanines and metal tetraazaporphins on the decomposition of hydroperoxides

AUTHOR(S): Filippova, T. V.; Liberova, T. V.; Milaeva, E. R.; Kopranenkov, V. N.; Kuznetsov, M. V.

CORPORATE SOURCE: Semenov Inst. Chem. Physics, Russian Acad. Sci., Moscow, 117977, Russia

SOURCE: Kinetics and Catalysis (Translation of Kinetika i Kataliz) (1995), 36(2), 211-17

CODEN: KICAA8; ISSN: 0023-1584

PUBLISHER: MAIK Nauka/Interperiodica

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Iron phthalocyanine and iron and cobalt tetraazaporphins are shown to selectively catalyze the decompn. of hydroperoxides. The decompn. rates for tertiary hydroperoxides are more than ten times higher than those for secondary hydroperoxides. The decompn. rates of tertiary hydroperoxides decrease substantially in the presence of second hydroperoxides. The

assumption is made that a catalytic center is blocked by secondary hydroperoxides as a result of the complex formation, in which the hydrogen atom of the CH group in the hydroperoxide mol. is linked to the central metal atom of a catalyst. This bond formation is confirmed by NMR.

IT **Oxidation catalysts**

(aut-, peculiarities in action of metal phthalocyanine and metal tetraazaporphin catalyzed decompn. of hydroperoxides)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(**metal complexes**, cobalt, tetraaza-; peculiarities in action of metal phthalocyanine and metal tetraazaporphin catalyzed decompn. of hydroperoxides)

L1 ANSWER 138 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:553066 HCAPLUS

DOCUMENT NUMBER: 123:101081

TITLE: Iron porphyrin-induced activation of dioxygen via: a. iron porphyrins and diphenylhydrazine for the hydroxylation of hydrocarbons; b. t-butylhydroperoxide for the direct ketonization of methylenic carbon; c. iron porphyrins for the autooxygenation of 3-methylindole

AUTHOR(S): Redman, Chad Eric

CORPORATE SOURCE: Texas A and M Univ., College Station, TX, USA

SOURCE: (1994) 173 pp. Avail.: Univ. Microfilms Int., Order No. DA9506701

From: Diss. Abstr. Int. B 1995, 55(10), 4370

DOCUMENT TYPE: Dissertation

LANGUAGE: English

AB Unavailable

IT **Oxidation catalysts**

(aut-, iron porphyrin-induced activation of dioxygen)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(**iron complexes**, iron porphyrin-induced activation of dioxygen)

L1 ANSWER 139 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:535382 HCAPLUS

DOCUMENT NUMBER: 122:313870

TITLE: Supported metalloporphyrin models for heme-catalyzed oxidations

AUTHOR(S): Smith, John R. Lindsay

CORPORATE SOURCE: Department Chemistry, University York, York, UK

SOURCE: Metalloporphyrins Catal. Oxid. (1994), 325-68.

Editor(s): Sheldon, Roger A. Dekker: New York, N. Y.

CODEN: 60SIAM

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review with 122 refs.

IT **Oxidation catalysts**

Polymer-supported reagents

Simulation and Modeling, biological

(supported metalloporphyrin models for heme-catalyzed oxidns.)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(**metal complexes**, supported metalloporphyrin models for heme-catalyzed oxidns.)

L1 ANSWER 140 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:535380 HCAPLUS

DOCUMENT NUMBER: 123:32378

TITLE: Metalloporphyrin-catalyzed oxidation of hydrocarbons with dioxygen

AUTHOR(S): Młodnicka, Teresa

CORPORATE SOURCE: Institute Catalysis and Surface Chemistry, Polish Academy Sciences, Krakow, Pol.

SOURCE: Metalloporphyrins Catal. Oxid. (1994), 261-96.

Editor(s): Sheldon, Roger A. Dekker: New York, N. Y.

CODEN: 60SIAM

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review with 154 refs.

IT Oxidation

Oxidation, aut-

Oxidation catalysts

(metalloporphyrin-catalyzed oxidn. of hydrocarbons with dioxygen)

IT **Oxidation catalysts**

(aut-, metalloporphyrin-catalyzed oxidn. of hydrocarbons with dioxygen)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(**metal complexes**, metalloporphyrin-catalyzed oxidn. of hydrocarbons with dioxygen)

L1 ANSWER 141 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:535379 HCAPLUS

DOCUMENT NUMBER: 123:82495

TITLE: Asymmetric oxidation with chiral porphyrin catalysts

AUTHOR(S): Naruta, Yoshinori

CORPORATE SOURCE: Department Chemistry, Kyoto University, Kyoto, Japan

SOURCE: Metalloporphyrins Catal. Oxid. (1994), 241-59.

Editor(s): Sheldon, Roger A. Dekker: New York, N. Y.

CODEN: 60SIAM

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review with 37 refs.

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, chiral asym. oxidn. catalysts)

IT **Oxidation catalysts**

(stereoselective, metalloporphyrins)

L1 ANSWER 142 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:535373 HCAPLUS

DOCUMENT NUMBER: 123:9033

TITLE: Mechanisms of reaction of hypervalent oxochromium, iron, and manganese tetraphenylporphyrins with alkenes

AUTHOR(S): Ostovic, Drazen; He, Gong-Xin; Bruice, Thomas C.

CORPORATE SOURCE: Merck Research Laboratories, Department Pharmaceutical

SOURCE: Research and Development, West Point, PA, USA
Metalloporphyrins Catal. Oxid. (1994), 29-68.
Editor(s): Sheldon, Roger A. Dekker: New York, N. Y.
CODEN: 60SIAM

DOCUMENT TYPE: Conference; General Review
LANGUAGE: English

AB A summary of the authors' work on the mechanism of epoxidn. of alkenes
using iron, manganese, and chromium meso-tetraarylporphyrins;82 refs.

IT Epoxidation

Epoxidation catalysts

Kinetics of epoxidation

(mechanism of epoxidn. of alkenes using iron, manganese, and chromium
meso-tetraarylporphyrins)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, mechanism of epoxidn. of alkenes
using iron, manganese, and chromium meso-tetraarylporphyrins)

L1 ANSWER 143 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:535372 HCAPLUS

DOCUMENT NUMBER: 123:82494

TITLE: Oxidation catalysis by metalloporphyrins. A historical
perspective

AUTHOR(S): Sheldon, Roger A.

CORPORATE SOURCE: Laboratory Organic Chemistry and Catalysis, Delft
University Technology, Delft, Neth.

SOURCE: Metalloporphyrins Catal. Oxid. (1994), 1-27.
Editor(s): Sheldon, Roger A. Dekker: New York, N. Y.
CODEN: 60SIAM

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review with 76 refs.

IT **Oxidation catalysts**
(metalloporphyrins)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, oxidn. catalysts)

L1 ANSWER 144 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:525746 HCAPLUS

DOCUMENT NUMBER: 123:56319

TITLE: Iron(III)porphinate/H2O2-mediated conversion of
all-(E)-retinol

AUTHOR(S): Waldmann, Doris; Koenig, Thorsten; Schreier, Peter

CORPORATE SOURCE: Lehrstuhl fuer Lebensmittelchemie, Universitaet
Wuerzburg, Wuerzburg, D-97074, Germany

SOURCE: Zeitschrift fuer Naturforschung, B: Chemical Sciences
(1995), 50(4), 589-94
CODEN: ZNBSEN; ISSN: 0932-0776

PUBLISHER: Verlag der Zeitschrift fuer Naturforschung

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The reaction of hydrogen peroxide with all-(E)-retinol catalyzed by
(meso-tetraphenylporphinato)iron(III) led to the formation of
4-hydroxyretinol, 4-oxoretinol, 5,8-epoxyretinol, 5,6-epoxyretinol,
3-dehydroretinol, all-(E)- and 12-(Z)-retroretinol as well as all-(E)- and
120(Z)-anhydroretinol as major non-volatile products. The conversion

products were characterized by comparison of their chromatog. (HPLC) and spectroscopic data (UV; MS; 1H and 13C NMR) with those of synthesized ref. compds. The obsd. product formation supports the hypothesis of a C4 centered radical as the key intermediate of all-(E)-retinol conversion.

IT Oxidation

Oxidation catalysts

(ironporphinate/H2O2-mediated conversion of all-(E)-retinol)

IT 16456-81-8

RL: **CAT (Catalyst use);** USES (Uses)

(ironporphinate/H2O2-mediated conversion of all-(E)-retinol)

L1 ANSWER 145 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:502796 HCAPLUS

DOCUMENT NUMBER: 123:82524

TITLE: The highly efficient oxidation of olefins, alcohols, sulfides and alkanes with heteroaromatic N-oxides catalyzed by ruthenium porphyrins

AUTHOR(S): Ohtake, Hiro; Higuchi, Tsunehiko; Hirobe, Masaaki

CORPORATE SOURCE: Faculty Pharm. Sci., Univ. Tokyo, Tokyo, 113, Japan

SOURCE: Heterocycles (1995), 40(2), 867-903

CODEN: HTCYAM; ISSN: 0385-5414

PUBLISHER: Japan Institute of Heterocyclic Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 123:82524

AB The O atom transfer reactions from 2,6-disubstituted pyridine N-oxides to olefins, allyl or benzyl alcs. and sulfides were efficiently catalyzed by Ru porphyrins, and these substrates were converted into epoxides, aldehydes and sulfoxides, resp., with high selectivity. These oxidns. also proceeded using other heteroarom. N-oxides, such as pyrazine N-oxides, as oxidants. The catalytic activity of Ru porphyrin complexes was enhanced by the addn. of a small amt. of HCl or HBr. In the presence of these acids, the oxidns. of alkanes or aliph. alcs. with 2,6-dichloropyridine N-oxides were also efficiently catalyzed by Ru porphyrin complexes, and alcs. or ketones were afforded as oxidn. products with high selectivity. In the hydroxylation of adamantane, Ru porphyrins work very efficiently as catalysts, giving a turnover no. of up to 120,000. This system offers practical advantages, such as mild conditions, tractability of oxidants and easy overall procedures. In the case of the reactions with HCl or HBr, one possibility in the reaction mechanism is that the activity of Ru porphyrins is enhanced in part by the coordination of Cl- or Br- as axial ligands.

IT **Oxidation catalysts**

(ruthenium porphyrinato complexes; for olefins and alkanes and alcs. and sulfides by heteroarom. N-oxides)

IT **Porphyrins**

RL: **CAT (Catalyst use);** USES (Uses)

(**ruthenium complexes**, oxidn. catalysts for olefins and alkanes and sulfides and alcs. by heteroarom. N-oxides)

IT 14172-90-8 15529-49-4 77439-21-5,
Chloro(tetramesitylporphyrinato)iron 85939-49-7,
Chloro(tetramesitylporphyrinato)manganese 119889-98-4,
Chloro(tetra(2,6-difluorophenyl)porphyrinato)manganese 161407-97-2,
Chloro(tetramesitylporphyrinato)rhodium 165274-30-6,
Hydroxooxo(tetramesitylporphyrinato)molybdenum

RL: **CAT (Catalyst use);** USES (Uses)

(lack of catalysis in oxidn. of olefins and alcs. and alkanes and

sulfides by heteroarom. N-oxides)

L1 ANSWER 146 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:494925 HCAPLUS
DOCUMENT NUMBER: 122:298522
TITLE: Porphyrin-catalyzed oxidation of trichlorophenol
AUTHOR(S): Hasan, Saleem
CORPORATE SOURCE: Univ. Tulsa, Tulsa, OK, USA
SOURCE: (1994) 250 pp. Avail.: Univ. Microfilms Int., Order
No. DA9400706
From: Diss. Abstr. Int. B 1995, 55(8), 3446
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable
IT **Oxidation catalysts**
(metal-porphyrin complexes for oxidn. of trichlorophenol in wastewater)
IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(cobalt complexes, metal-porphyrin complexes for
oxidn. of trichlorophenol in wastewater)
IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(iron complexes, metal-porphyrin complexes for
oxidn. of trichlorophenol in wastewater)
IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(manganese complexes, metal-porphyrin complexes for
oxidn. of trichlorophenol in wastewater)

L1 ANSWER 147 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:454096 HCAPLUS
DOCUMENT NUMBER: 123:55407
TITLE: Study of catalytic activity of nitro substituted iron
porphyrins
AUTHOR(S): Assis, Marilda Does; Melo, Andrea Junqueira Botelho
de; Serra, Osvaldo Antonio; Iamamoto, Yassuko
CORPORATE SOURCE: Departamento de Quimica, FFCLRP USP, Av Bandeirantes
3900, Ribeirao Preto, SP, CEP14040-901, Brazil
SOURCE: Journal of Molecular Catalysis A: Chemical (1995),
97(1), 41-7
CODEN: JMCCF2; ISSN: 1381-1169
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB O-Nitrophenyl meso-substituted iron porphyrins (FeP) and their
corresponding .mu.-oxo dimers were studied as catalyst in the oxidn. of
cyclohexane by iodosylbenzene (PhIO). The cyclohexanol yield vs. FeP
concn. plot indicate the nature of active species. For (FeTNPP)Cl and
(FeDNPP)Cl the active species is FeIV(O)P+.bul. (1). For unhindered
(FeMNPP)Cl, the involvement of PFeIV-O-FeIV(O)P+.bul. (2) explains the
results. The catalytic activity of dimeric species (FeMNPP)2O and
(FeDNPP)2O were surprisingly high, being as good as the monomeric ones.
There is evidence of species 2 for these dimer catalysts. The oxidn.
reaction conditions were studied. We obsd. that the concn. of the
catalyst, stirring method, ratio of iodosylbenzene/catalyst and presence
of air can affect the cyclohexanol yields. (FeMNPP)Cl and (FeMNPP)2O as
catalysts can be seen as good P 450 model systems due to their stability,

efficiency and selectivity toward cyclohexanol. The electron withdrawing effect of the substituents on the meso-Ph rings of the porphyrin overwhelms the steric one in the catalytic activity, since only one o-nitro group is almost as efficient as the tetra-o-nitro substituted FeP. This work contributes to the understanding of the catalytic activities of unhindered iron porphyrins.

IT Hydroxylation

Hydroxylation catalysts

Oxidation

Oxidation catalysts

Substituent effect

(oxidn. catalytic activity of nitro substituted iron porphyrins)

IT 12582-61-5 **16456-81-8** 85529-40-4 118115-08-5 164588-61-8

164588-62-9 164588-63-0 164714-05-0

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. catalytic activity of nitro substituted iron porphyrins)

L1 ANSWER 148 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:453745 HCAPLUS

DOCUMENT NUMBER: 122:265154

TITLE: Metalloporphyrins in Catalytic Oxidations

AUTHOR(S): Sheldon, Roger A.; Editor

CORPORATE SOURCE: USA

SOURCE: (1994) Publisher: (Dekker: New York, N. Y.), 390 pp.

DOCUMENT TYPE: Book

LANGUAGE: English

AB Unavailable

IT **Oxidation catalysts**

(metalloporphyrins in Catalytic Oxidns.)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, in Catalytic Oxidns.)

L1 ANSWER 149 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:435041 HCAPLUS

DOCUMENT NUMBER: 123:32491

TITLE: Formation of a new active oxidizing species in photosensitized oxygenation of heteroatom compounds

AUTHOR(S): Akasaka, Takeshi; Ando, Wataru

CORPORATE SOURCE: Dep. Chem., Univ. Tsukuba, Ibaraki, 305, Japan

SOURCE: Phosphorus, Sulfur and Silicon and the Related Elements (1994), 95 & 96(1-4), 437-8

CODEN: PSSLEC; ISSN: 1042-6507

PUBLISHER: Gordon & Breach

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Singlet oxygen oxidn. of heteroatom compds. caused cooxidn. of olefin epoxides. A persulfoxide intermediate generated in singlet oxygen oxidn. of sulfide can transfer an oxygen atom to iron(III) porphyrin to form the iron oxo species. A phosphadioxirane is proposed as the labile intermediate formed in singlet oxygen oxidn. of phosphite. These active oxidizing species are responsible for epoxidn. of olefins.

IT Epoxidation

Epoxidation catalysts

Oxidation, photochemical

Oxidation catalysts

(active oxidizing species in photosensitized oxygenation of heteroatom

compds.)

IT **Porphyrins**
RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(**metal complexes**, active oxidizing species in photosensitized oxygenation of heteroatom compds.)

L1 ANSWER 150 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:351792 HCAPLUS
DOCUMENT NUMBER: 122:159793
TITLE: Selective oxidations in organic chemistry using biomimetic catalysts
AUTHOR(S): Mansuy, Daniel
CORPORATE SOURCE: Laboratoire de Chimie et Biochimie Pharmacologiques et Toxicologiques, Universite Rene Descartes, Paris, 75270/06, Fr.
SOURCE: New Aspects Org. Chem. II, Proc. Int. Kyoto Conf., 5th (1992), Meeting Date 1991, 477-97. Editor(s): Yoshida, Zen-ichi; Ohshiro, Yoshiki. Kodansha: Tokyo, Japan.
CODEN: 6OUNAD
DOCUMENT TYPE: Conference
LANGUAGE: English

AB New selective oxidn. catalysts mimicking cytochrome P 450-dependent monooxygenases have been obtained by following three strategies. The first one was based on Fe(III) or Mn(III) porphyrins as homogeneous catalysts in the presence of an oxygen atom donor like PhIO or H2O2. Good results have been obtained for the hydroxylation of linear alkanes and the oxidn. of methoxyarenes to quinones by using iron porphyrins bearing electron-withdrawing substituents on the pyrrole .beta.-positions. The second strategy was to prep. supported catalysts by incorporation of a metalloporphyrin in a polymer mineral matrix (covalent binding or adsorption on silica, intercalation into layered clays...). The biotechnol. catalysts prepd. after the third strategy have been obtained by expression of the genes coding for different human liver cytochrome P 450 isoenzymes in yeast. The specific properties of these various catalysts are compared.

IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, polymer matrix; selective oxidns. in org. chem. using biomimetic catalysts)

IT **Oxidation catalysts**
(selective, selective oxidns. in org. chem. using biomimetic catalysts)

L1 ANSWER 151 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:341278 HCAPLUS
DOCUMENT NUMBER: 122:133400
TITLE: Metalloporphyrins Catalyzed Oxidations. [In: Catal. Met. Complexes, 1993; 17]
AUTHOR(S): Montanari, F.; Casella, L.; Editors
CORPORATE SOURCE: Neth.
SOURCE: (1994) Publisher: (Kluwer: Dordrecht, Neth.), 351 pp.
DOCUMENT TYPE: Book
LANGUAGE: English
AB Unavailable
IT **Oxidation catalysts**

(metalloporphyrin-catalyzed oxidns.)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, metalloporphyrin-catalyzed oxidns.)

L1 ANSWER 152 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:319697 HCAPLUS
DOCUMENT NUMBER: 122:104944
TITLE: Oxygenation reactions under two-phase conditions
AUTHOR(S): Montanari, Fernando; Banfi, Stefano; Pozzi, Gianluca; Quici, Silvio
CORPORATE SOURCE: Dep. Industrial and Organic Chem., Univ. Milano, Milano, I-20133, Italy
SOURCE: Catalysis by Metal Complexes (1994), 17(Metalloporphyrins Catalyzed Oxidations), 149-73
CODEN: CMCOES; ISSN: 0920-4652
PUBLISHER: Kluwer
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review with 89 refs. focusing on metalloporphyrin-catalyzed oxygenations.

IT **Oxidation catalysts**

(metalloporphyrin-catalyzed oxygenation reactions under two-phase conditions)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, metalloporphyrin-catalyzed oxygenation reactions under two-phase conditions)

L1 ANSWER 153 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:319696 HCAPLUS
DOCUMENT NUMBER: 122:105461
TITLE: Oxidations catalyzed by ruthenium porphyrins
AUTHOR(S): Mlodnicka, Teresa; James, Brian R.
CORPORATE SOURCE: Dep. Chem., Univ. British Columbia, Vancouver, BC, V6T 1Z1, Can.
SOURCE: Catalysis by Metal Complexes (1994), 17(Metalloporphyrins Catalyzed Oxidations), 121-48
CODEN: CMCOES; ISSN: 0920-4652
PUBLISHER: Kluwer
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB Studies dealing with the attempts to mimic the extensive biol. chem. of naturally occurring iron porphyrin systems using the ruthenium complexes are reviewed with 104 refs.

IT **Oxidation catalysts**

(ruthenium porphyrins)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(**ruthenium complexes**, oxidns. catalyzed by)

L1 ANSWER 154 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:319695 HCAPLUS
DOCUMENT NUMBER: 122:160042
TITLE: Oxidation of alkanes
AUTHOR(S): Shilov, A. E.; Karasevich, E. I.

CORPORATE SOURCE: Inst. Chem. Phys., Chernogolovka, 142432, Russia
SOURCE: Catalysis by Metal Complexes (1994),
17(Metalloporphyrins Catalyzed Oxidations), 87-120
CODEN: CMCOES; ISSN: 0920-4652
PUBLISHER: Kluwer
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 81 refs. on metalloporphyrin catalyzed oxidn. of alkanes.
IT Oxidation
Oxidation catalysts
(metalloporphyrin catalyzed oxidn. of alkanes)
IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, metalloporphyrin catalyzed oxidn.
of alkanes)

L1 ANSWER 155 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:319693 HCAPLUS
DOCUMENT NUMBER: 122:104943
TITLE: General overview on oxidations catalyzed by
metalloporphyrins
AUTHOR(S): Meunier, Bernard
CORPORATE SOURCE: Lab. Chimie Coordination, CNRS, Toulouse, 31077, Fr.
SOURCE: Catalysis by Metal Complexes (1994),
17(Metalloporphyrins Catalyzed Oxidations), 1-47
CODEN: CMCOES; ISSN: 0920-4652
PUBLISHER: Kluwer
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 315 refs. on the various oxidn. reactions catalyzed by sol.
and supported metalloporphyrins, including aspects of the development of
cationic metalloporphyrins as artificial endonucleases.
IT **Oxidation catalysts**
(oxidns. catalyzed by metalloporphyrins)
IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, oxidns. catalyzed by
metalloporphyrins)

L1 ANSWER 156 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:299033 HCAPLUS
DOCUMENT NUMBER: 122:132861
TITLE: Shape selective oxygen transfer to olefins catalyzed
by sterically hindered iron porphyrins
AUTHOR(S): Ahn, Kwang-Hyun; Groves, John T.
CORPORATE SOURCE: College Natural Sci., Kyung Hee Univ., Ki-Do, 449-701,
S. Korea
SOURCE: Bulletin of the Korean Chemical Society (1994),
15(11), 957-61
CODEN: BKCSDE; ISSN: 0253-2964
PUBLISHER: Korean Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 122:132861
AB Epoxidn. of olefins catalyzed by iron-tetraarylporphyrins were studied to
see the shape selectivity in the competing reaction between cis- and
trans- or internal and external olefins. Cis-olefins were more reactive

than trans-olefins in the competing reaction between cis- and trans-olefins. Interestingly, in the epoxidn. of cis-.beta.-methystyrene by .alpha..beta..alpha..beta. atropisomer of Fe(III)TNPPPCl and iodosylbenzene, 27% of total product was phenylacetone. The unusually large amt. of phenylacetone may be produced by hydride rearrangement of carbocationic intermediate. Regioselectivity of the reaction was also studied by using the most sterically hindered Fe(III)TTPPPCl. In the epoxidn. of limonene with Fe(III)TTPPPCl, the disubstituted double bond was more reactive than trisubstituted double bond. This is in contrast to the results obtained with other iron-tetraarylporphyrins. Similar trend was also obsd. in the competing reaction between mono- and di-substituted olefins.

IT Asymmetric synthesis and induction
Epoxidation

Epoxidation catalysts

Regiochemistry

Stereochemistry

(shape selective oxygen transfer to olefins catalyzed by sterically hindered iron porphyrins)

IT **16456-81-8** 19496-18-5 52155-50-7 77439-21-5 86456-38-4
106880-48-2 161106-60-1

RL: **CAT (Catalyst use)**; USES (Uses)

(shape selective oxygen transfer to olefins catalyzed by sterically hindered iron porphyrins)

L1 ANSWER 157 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:297826 HCAPLUS

DOCUMENT NUMBER: 122:70590

TITLE: Threitol-Strapped Manganese Porphyrins as
Enantioselective Epoxidation Catalysts of
Unfunctionalized Olefins

AUTHOR(S): Collman, James P.; Lee, Virgil J.; Kellen-Yuen,
Cynthia J.; Zhang, Xumu; Ibers, James A.; Brauman,
John I.

CORPORATE SOURCE: Department of Chemistry, Stanford University,
Stanford, CA, 94305, USA

SOURCE: Journal of the American Chemical Society (1995),
117(2), 692-703

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Nine members of a family of new chiral porphyrins were prepd. from reactions between ditosylthreitol derivs. and 5,10,15,20-tetrakis(2-hydroxyphenyl)porphyrin. The assignment of the resultant isomers was made from their 1H NMR spectra and from an abs. configuration detn. from the crystal structure of I (4). The chiral frameworks of these systems are easily varied by condensing different aldehydes and ketones with the 2,3-diol of the threitol unit. The Mn derivs. of six of these systems were studied as asym. catalysts in the epoxidn. of unfunctionalized olefins. Up to 88% ee is obtained in the epoxidn. of 1,2-dihydronaphthalene with one of these derivs., 9, when a bulky imidazole ligand is used to block the unhindered face of the porphyrin catalyst.

IT **Porphyrins**

RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(manganese complexes, threitol-strapped; prepn. and

- unfunctionalized olefin epoxidn. catalyzed by)
- IT **Epoxidation catalysts**
(stereoselective, manganese threitol-strapped porphyrins; for unfunctionalized olefins)
- L1 ANSWER 158 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:297014 HCAPLUS
DOCUMENT NUMBER: 122:160182
TITLE: The mechanism of enzymic and biomimetic oxidations of aromatic sulfides and sulfoxides
AUTHOR(S): Baciocchi, Enrico; Lanzalunga, Osvaldo; Marconi, Francesco
CORPORATE SOURCE: Dipartimento Chimica, Universita "La Sapienza", Rome, 00185, Italy
SOURCE: Tetrahedron Letters (1994), 35(52), 9771-4
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 122:160182
- AB Biomimetic and enzymic oxidns. of benzyl sulfides and sulfoxides (4-methoxybenzyl Ph sulfide and sulfoxide and 2-phenyl-2-Pr Ph sulfide) lead to products (sulfoxide or sulfones) different from those obtained with bona fide electron transfer oxidns. (products of C-H and/or C-S bond cleavage), which suggests the operation of an oxygen transfer mechanism.
- IT Oxidation
Oxidation catalysts
(mechanism of enzymic and biomimetic oxidns. of arom. sulfides and sulfoxides)
- IT 12520-46-6 **16456-81-8**
RL: **CAT (Catalyst use)**; USES (Uses)
(mechanism of enzymic and biomimetic oxidns. of arom. sulfides and sulfoxides)
- L1 ANSWER 159 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:286499 HCAPLUS
DOCUMENT NUMBER: 122:94975
TITLE: Oxidation reactions of Mononuclear Manganese(III) Complexes
AUTHOR(S): Gangopadhyay, Sumana; Ali, Mahammad; Banerjee, Pradyot
CORPORATE SOURCE: Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Calcutta, 700 032, India
SOURCE: Coordination Chemistry Reviews (1994), 135/136, 399-427
CODEN: CCHRAM; ISSN: 0010-8545
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
- AB A review, with 73 refs., is given on the oxidn. reactions of various Mn(III) coordinated mols. The reactions are categorized primarily with respect to the type of Mn(III) complexes. Emphasis is given to the reactivity of the Mn(III) complexes derived from aminopolycarboxylic acids, acetylacetone, porphyrins, bipyridine, and pyrophosphoric acid with various org., inorg., and biochem. electron donors. Kinetic and mechanistic features assocd. with the interactions are highlighted and analyzed critically. The utility and scope of the catalytic oxidn. of

hydrocarbons and secondary amines by Mn(III) porphyrins are discussed at length.

IT **Oxidation catalysts**

(manganese(III) porphyrins)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(**manganese complexes**, as catalysts for oxidn. of hydrocarbons and secondary amines)

L1 ANSWER 160 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:218015 HCAPLUS

DOCUMENT NUMBER: 123:32476

TITLE: "Redox Tautomerism" in High-Valent Metal-oxo-aquo Complexes. Origin of the Oxygen Atom in Epoxidation Reactions Catalyzed by Water-Soluble Metalloporphyrins. [Erratum to document cited in CA122:105083]

AUTHOR(S): Bernadou, Jean; Fabiano, Anne-Sylvie; Robert, Anne; Meunier, Bernard

CORPORATE SOURCE: Laboratoire de Chimie de Coordination, CNRS, Toulouse, 31077, Fr.

SOURCE: Journal of the American Chemical Society (1994), 116(26), 12135

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The errors were not reflected in the abstr. or the index entries.

IT **Epoxidation**

Epoxidation catalysts

(redox tautomerism mechanism of metalloporphyrin-catalyzed epoxidn. of carbamazepine with monopersulfate (Erratum))

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, redox tautomerism mechanism of metalloporphyrin-catalyzed epoxidn. of carbamazepine with monopersulfate (Erratum))

L1 ANSWER 161 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:175676 HCAPLUS

DOCUMENT NUMBER: 123:44115

TITLE: Photosensitizing effect of metal complexes of tetranaphthylporphyrins

AUTHOR(S): Rodica-Mariana, Ion

CORPORATE SOURCE: Rom.

SOURCE: Revistade Chimie (Bucharest, Romania) (1994), 45(9), 827-8

CODEN: RCBUAU; ISSN: 0034-7752

DOCUMENT TYPE: Journal

LANGUAGE: Romanian

AB Photooxidn. of 2-methyl-2-butene sensitized by metal complexes of tetranaphthylporphyrins was studied.

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, tetranaphthyl-; photooxidn. of methylbutene sensitized by **metal complexes** of tetranaphthylporphyrins)

IT **Oxidation catalysts**

(photochem., photooxidn. of methylbutene sensitized by metal complexes of tetranaphthylporphyrins)

L1 ANSWER 162 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:94938 HCAPLUS

DOCUMENT NUMBER: 122:105083

TITLE: "Redox Tautomerism" in High-Valent Metal-oxo-aquo Complexes. Origin of the Oxygen Atom in Epoxidation Reactions Catalyzed by Water-Soluble Metalloporphyrins

AUTHOR(S): Bernadou, Jean; Fabiano, Anne-Sylvie; Robert, Anne; Meunier, Bernard

CORPORATE SOURCE: Laboratoire de Chimie de Coordination, CNRS, Toulouse, 31077, Fr.

SOURCE: Journal of the American Chemical Society (1994), 116(20), 9375-6

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Monopersulfate epoxidns. of carbamazepine catalyzed by water-sol. metalloporphyrins in aq. soln. with variable H₂O contents indicated that half of the oxygen atoms incorporated in the epoxide came from the solvent. A "redox tautomerism" mechanism involving a coordinated water mol. of the metalloporphyrin catalyst was proposed to explain the const. incorporation ratio of 0.5.

IT Epoxidation

Epoxidation catalysts

(redox tautomerism mechanism of metalloporphyrin-catalyzed epoxidn. of carbamazepine with monopersulfate)

IT **Porphyrins**

RL: CAT (Catalyst use); USES (Uses)

(metal complexes, redox tautomerism mechanism of metalloporphyrin-catalyzed epoxidn. of carbamazepine with monopersulfate)

L1 ANSWER 163 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:9427 HCAPLUS

DOCUMENT NUMBER: 122:9518

TITLE: Synthesis of porphyrin compounds and biomimesis for cytochrome P-450 11. Temperature effect on the imitative oxidation catalyzed by metalloporphyrins

AUTHOR(S): Guo, Cancheng; Zheng, Qinyun; Liu, Lianyin

CORPORATE SOURCE: Dep. Chem., Hunan Norm. Univ., Changsha, Peop. Rep. China

SOURCE: Hunan Shifan Daxue Ziran Kexue Xuebao (1993), 16(4), 327-31

CODEN: HSDXEL; ISSN: 1000-2537

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The reaction of transferring an oxygen atom from PhIO to cyclohexane catalyzed by TPPFeCl (TPPH₂ = meso-tetraphenylporphine), TPPMnCl, [TPPFe]2O and [TPPMn]2O resp. was reported. The kinetic properties of these reactions in benzene were studied. The catalytic properties of these metalloporphyrins were found to be related to the reaction temp., and the different temp. effects for different porphyrins were found.

IT **Oxidation catalysts**

(temp. effect on oxidn. of cyclohexane with iodosobenzene catalyzed by

metalloporphyrins)
 IT 11128-17-9 12650-83-8 **16456-81-8** 34557-72-7
 RL: **CAT (Catalyst use)**; USES (Uses)
 (temp. effect on oxidn. of cyclohexane with iodosobenzene catalyzed by
 metalloporphyrins)

L1 ANSWER 164 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1994:658573 HCAPLUS
 DOCUMENT NUMBER: 121:258573
 TITLE: Detergent compositions inhibiting dye transfer in
 washing
 INVENTOR(S): Fredj, Abdennaceur; Johnston, James Pyott; Labeque,
 Regine; Thoen, Christiaan Arthur Jacques; Convents,
 Andre Christian; Busch, Alfred
 PATENT ASSIGNEE(S): Procter and Gamble Co., USA
 SOURCE: Eur. Pat. Appl., 12 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 596187	A1	19940511	EP 1992-870184	19921106
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, PT, SE				
WO 9411478	A1	19940526	WO 1993-US10544	19931103
W: AU, BB, BG, BR, BY, CA, CZ, FI, HU, JP, KP, KR, KZ, LK, LV, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, UA, US, UZ, VN				
RW: BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2148812	AA	19940526	CA 1993-2148812	19931103
AU 9455906	A1	19940608	AU 1994-55906	19931103
JP 08503247	T2	19960409	JP 1993-512174	19931103
CN 1088254	A	19940622	CN 1993-112695	19931106
PRIORITY APPLN. INFO.:			EP 1992-870184	19921106
			WO 1993-US10544	19931103
AB A catalyst selected from non-iron metallo porphins, porphyrins, and phthalocyanines and their water-sol. or water-dispersible derivs. is used with a peroxide bleaching agent (e.g., H2O2) as a dye-transfer-inhibiting system in laundry detergents.				
IT Oxidation catalysts (dye-transfer-inhibiting systems contg. peroxide bleach and, in detergents)				
IT Porphyrins RL: CAT (Catalyst use) ; USES (Uses) (metal complexes , bleaching catalysts, dye-transfer-inhibiting system contg. peroxide and)				

L1 ANSWER 165 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1994:658571 HCAPLUS
 DOCUMENT NUMBER: 121:258571
 TITLE: Detergent compositions inhibiting dye transfer in
 washing
 INVENTOR(S): Fredj, Abdennaceur; Johnston, James Pyott; Labeque,
 Regine; Thoen, Chistiaan Arthur Jacques; Convents,
 Andre Christian; Busch, Alfred
 PATENT ASSIGNEE(S): Procter and Gamble Co., USA

SOURCE: Eur. Pat. Appl., 12 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 596186	A1	19940511	EP 1992-870183	19921106
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, PT, SE				
WO 9411479	A1	19940526	WO 1993-US10548	19931103
W: AU, BB, BG, BR, BY, CA, CZ, FI, HU, JP, KP, KR, KZ, LK, LV, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, UA, US, UZ, VN				
RW: BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2148809	AA	19940526	CA 1993-2148809	19931103
AU 9455908	A1	19940608	AU 1994-55908	19931103
CN 1088255	A	19940622	CN 1993-112696	19931106
PRIORITY APPLN. INFO.:			EP 1992-870183	19921106
			WO 1993-US10548	19931103
AB	A catalyst selected from non-iron metallo porphins, porphyrins, and phthalocyanines and their water-sol. or water-dispersible derivs. is used with a quick-release (i.e., released within 5 min of addn. to water) bleaching agent (e.g., perborate or percarbonate) as a dye-transfer-inhibiting system in laundry detergents.			
IT	Oxidation catalysts (dye-transfer-inhibiting systems contg. peroxide and, in detergents)			
IT	Porphyrins RL: CAT (Catalyst use); USES (Uses) (metal complexes, bleaching catalysts, dye-transfer-inhibiting systems contg. peroxide and)			
L1	ANSWER 166 OF 344 HCAPLUS COPYRIGHT 2003 ACS			
ACCESSION NUMBER:	1994:655525 HCAPLUS			
DOCUMENT NUMBER:	121:255525			
TITLE:	Alkene epoxidation catalyzed by iron(III) and manganese(III) tetraarylporphyrins coordinatively bound to polymer and silica supports			
AUTHOR(S):	Cooke, Paul R.; Smith, John R. Lindsay			
CORPORATE SOURCE:	Department of Chemistry, University of York, York, YO1 5DD, UK			
SOURCE:	Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1994), (14), 1913-23 CODEN: JCPRB4; ISSN: 0300-922X			
DOCUMENT TYPE:	Journal			
LANGUAGE:	English			
AB	Four tetraaryl metalloporphyrin catalysts [FeIII, Ar = Ph and pentafluorophenyl; FeIII and MnIII, Ar = 2,6-dichlorophenyl (FeIIITDCPP and MnIIITDCPP)] have been coordinatively bonded to poly(4-vinylpyridine) and to imidazole-modified polystyrene (PS-Im) and silica (Si-Im). Evidence is presented that suggests that the iron(III) porphyrins are predominantly bis-ligated to the polymer supports whereas with MnIIITDCPP mono-ligation is preferred. On Si-Im all the complexes are mono-ligated. A fifth metalloporphyrin, the ionic manganese(III) 5,10,15,20-tetrakis(N-methyl-4-pyridyl)porphyrin (MnIIIT4MPyP), which binds strongly to unmodified silica, does not ligate to Si-Im. Leaching expts. show that			

FeIIITDCPP is most strongly anchored to the supports. The resulting materials have been used as catalysts for the oxidn. of cyclohexene and cyclooctene by iodosylbenzene. The oxidant accountabilities are good and product distributions from reactions under nitrogen are very comparable to those from analogous homogeneous oxidns. However, the rates of the former are markedly lower. Oxidns. of cyclohexene, but not of cyclooctene, in air are biphasic. The first phase, where epoxidn. predominates, is attributable to FeIIITDCPP-catalyzed oxidn. by PhIO and the second, which leads to allylic oxidn., to radical autoxidn. The best catalysts for large turnover epoxidns. are FeIIITDCPP and MnIIITDCPP on Si-Im. The causes of the lower yields with catalysts on the more flexible polymer supports are discussed. A limited study with H₂O₂ as the oxidant reveals that MnIIITDCPP on Si-Im, in contrast to the ionic MnIIIT4MPyP on silica, catalyzes the epoxidn. of cyclooctene.

IT **Epoxidation catalysts**

(alkene epoxidn. catalyzed by iron and manganese tetraarylporphyrins bound to polymer and silica supports)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(**metal complexes**, alkene epoxidn. catalyzed by iron and manganese tetraarylporphyrins bound to polymer and silica supports)

L1 ANSWER 167 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:630130 HCAPLUS

DOCUMENT NUMBER: 121:230130

TITLE: Catalytic behavior of monosubstituted heteropoly compounds in the oxidation of cyclohexene with molecular oxygen

AUTHOR(S): Qin, Dujie; Wang, Guojia; Wu, Yue

CORPORATE SOURCE: Dep. Chem., Jilin Univ., Changchun, 130023, Peop. Rep. China

SOURCE: Gaodeng Xuexiao Huaxue Xuebao (1994), 15(2), 279-80

CODEN: KTHPDM; ISSN: 0251-0790

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB In this paper, it was found that the transition-metal substituted heteropoly-molybdates, {[$(n-C_4H_9)_4N$]5PMo11(Zn+L)} (Z = Mn, Fe, Cu; L = unknown), were remarkably effective catalysts for the selective oxidn. of cyclohexene with mol. oxygen under mild conditions. Based on this, the results obtained were compared with the results for the same reaction catalyzed by related substituted heteropolytungstates and metalloporphyrins. It was found that although Mo⁶⁺ and W⁶⁺ in monosubstituted polyoxometalates could participate in the reaction, the main active center is substituting transition metal.

IT **Oxidation catalysts**

(transition-metal substituted heteropoly-molybdate catalysts for selective oxidn. of cyclohexene with oxygen)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(**metal complexes**, comparative study; transition-metal substituted heteropoly-molybdate catalysts for selective oxidn. of cyclohexene with oxygen)

L1 ANSWER 168 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:579281 HCAPLUS

DOCUMENT NUMBER: 121:179281

TITLE: Models for horseradish peroxidase compound II: phenol

oxidation with oxoiron(IV) porphyrins
AUTHOR(S): Colclough, Nicola; Smith, John R. Lindsay
CORPORATE SOURCE: Department of Chemistry, University of York, York, Y01
5DD, UK
SOURCE: Act. Dioxygen Homogeneous Catal. Oxid., [Proc. Int.
Symp.], 5th (1993), 171-82. Editor(s): Barton, Derek
H. R.; Martell, Arthur Earl; Sawyer, Donald T.
Plenum: New York, N. Y.
CODEN: 60ENAZ
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB Review with 26 refs.
IT **Oxidation catalysts**
(phenol oxidn. with oxoiron(IV) porphyrins as model for horseradish
peroxidase compd. II)
IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(**iron complexes**, phenol oxidn. with oxoiron(IV)
porphyrins as model for horseradish peroxidase compd. II)

L1 ANSWER 169 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:579142 HCAPLUS
DOCUMENT NUMBER: 121:179142
TITLE: Oxidation of cyclohexane catalyzed by polyhalogenated
and perhalogenated iron porphyrins
AUTHOR(S): Battioni, P.; Haber, J.; Iwanejko, R.; Mansuy, D.;
Mlodnicka, T.
CORPORATE SOURCE: Lab. Chim. Biochim. Pharmacol. Toxicol., Univ. Rene
Descartes, Paris, Fr.
SOURCE: Act. Dioxygen Homogeneous Catal. Oxid., [Proc. Int.
Symp.], 5th (1993), 449. Editor(s): Barton, Derek H.
R.; Martell, Arthur Earl; Sawyer, Donald T. Plenum:
New York, N. Y.
CODEN: 60ENAZ
DOCUMENT TYPE: Conference
LANGUAGE: English
AB A symposium report.
IT **Oxidation catalysts**
(oxidn. of cyclohexane catalyzed by polyhalogenated and perhalogenated
iron porphyrins)
IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(**iron complexes**, oxidn. of cyclohexane catalyzed by
polyhalogenated and perhalogenated iron porphyrins)

L1 ANSWER 170 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:441957 HCAPLUS
DOCUMENT NUMBER: 121:41957
TITLE: Pentachlorophenol (PCP) degradation using heme and
hydrogen peroxide
AUTHOR(S): Stevens, David K.; Chen, Shyitien; Kang, Guyoung
CORPORATE SOURCE: Dep. Civ. Environ. Eng., Utah State Univ., Logan, UT,
84322-4110, USA
SOURCE: Chemical Oxidation (1994), Volume Date 1993, 3, 134-55
CODEN: CHOEC; ISSN: 1072-2459
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The environmental impact of pentachlorophenol (PCP) was the subject of extensive research in recent years. Investigations of PCP degrdn. using both biotic and abiotic methods are wide spread in the literature. Based on research at USU and preliminary tests, an abiotic method for oxidative PCP degrdn. in soil under unsatd. conditions and a neutral pH was found in the Division of Environmental Engineering of the CEE Department at Utah State University. Reagents used are heme (a catalyst) and peroxide (an oxidant). In order to det. the best conditions for PCP degrdn. in soil, factorial expts. and response surface anal. were employed and important variables and the best conditions for PCP degrdn. in soil were detd. Kinetic studies were also conducted to examine the rate and extent of PCP degrdn. Up to 80% degrdn. of highly PCP/creosote contaminated soil from a wood preserving site was obtained in a four hour reaction time. Up to 17% of the PCP was mineralized to CO₂.

IT **Oxidation catalysts**

(heme, for removal of pentachlorophenol from contaminated soil)

IT **14875-96-8, Heme**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for removal of pentachlorophenol from contaminated soil)

L1 ANSWER 171 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:419147 HCAPLUS

DOCUMENT NUMBER: 121:19147

TITLE: Controlled orientation of metalloporphyrins and regioselective epoxidations in thermotropic liquid crystals

AUTHOR(S): Neumann, Ronny

CORPORATE SOURCE: Casali Inst. Appl. Chem., Hebrew Univ. Jerusalem, Jerusalem, 91904, Israel

SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (1994), 240, 33-7
CODEN: MCLCE9; ISSN: 1058-725X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The orientation of a porphyrin mol. in a thermotropic nematic liq. crystal can be controlled by mol. design. Thus, the porphyrin plane of tetraphenylporphyrin (TPP) is aligned parallel to the director of a liq. crystal whereas a porphyrin with orthogonal substitution of mesogenic 4-n-butoxybiphenyl appendages (MesogenP) is oriented in a perpendicular conformation. The alignment was detd. by time resolved EPR spectroscopy of the triplet state of the free base porphyrin. Manganese TPP and MesogenP porphyrins then were used as catalysts for the epoxidn. of alkenes using iodosobenzene as oxidant. Reaction yields and regioselectivity for elongated substrates such as cis-stilbene and 4-vinylbiphenyl were dependent on the alignment of the alkene and its carbon-carbon double bond relative to the director and metalloporphyrin catalyst.

IT **Epoxidation catalysts**

(metalloporphyrins with controlled orientation, in thermotropic liq. crystals)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(metal complexes, catalysts, with controlled orientation, for regioselective alkene epoxidns. in thermotropic liq. crystals)

L1 ANSWER 172 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:408810 HCAPLUS
DOCUMENT NUMBER: 121:8810
TITLE: Metalloporphyrin-catalyzed synthesis of
2,6-di-tert-butyl-p-benzoquinone and
3,3',5,5'-tetra-tert-butylldiphenoquinone
AUTHOR(S): Zeng, Qingping; Zheng, Weizhong; Wang, Xianyuan; Li,
Guangnian
CORPORATE SOURCE: Chengdu Inst. Org. Chem., Acad. Sin., Chengdu, 610015,
Peop. Rep. China
SOURCE: Hecheng Huaxue (1993), 1(1), 82-4
CODEN: HEHUE2; ISSN: 1005-1511
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 121:8810
AB Di-tert-butyl-p-benzoquinone and 3,3',5,5'-tetra-tert-butylldiphenoquinone
were prep'd. from di-tert-butylphenol with high selectivity and yield under
mild conditions. Metalloporphyrins, CoTPP and MnTPPCL (TPP =
tetraphenylporphyrin), were used as the catalysts and oxygen as the
oxidant.
IT **Oxidation catalysts**
(metalloporphyrins, for dibutylphenol)
IT **14172-90-8**, Cobalt tetraphenylporphyrin 32195-55-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for oxidn. of dibutylphenol)

L1 ANSWER 173 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:323987 HCAPLUS
DOCUMENT NUMBER: 120:323987
TITLE: I. Biomimetic electron transfer reactions and
oxidation catalysis in phospholipid vesicles. II. The
origin of stereoselectivity in the metalloporphyrin
catalyzed epoxidation of delta5-steroids
AUTHOR(S): Ungashe, Solomon Beyene
CORPORATE SOURCE: Princeton Univ., Princeton, NJ, USA
SOURCE: (1992) 244 pp. Avail.: Univ. Microfilms Int., Order
No. DA9216846
From: Diss. Abstr. Int. B 1992, 53(1), 290
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable
IT **Oxidation catalysts**
(in phospholipid vesicles)
IT **Epoxidation catalysts**
(metalloporphyrins, for delta5-steroids)
IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(metal complexes, catalysts, for epoxidn. of
delta5-steroids)

L1 ANSWER 174 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:323044 HCAPLUS
DOCUMENT NUMBER: 120:323044
TITLE: Mechanisms of iron porphyrin catalyzed epoxidation of
alkenes and the concomitant N-alkylhemin formation
AUTHOR(S): Tian, Zong Qiang
CORPORATE SOURCE: Univ. California, San Diego, CA, USA

SOURCE: (1992) 238 pp. Avail.: Univ. Microfilms Int., Order No. DA9303255

From: Diss. Abstr. Int. B 1993, 53(9), 4675

DOCUMENT TYPE: Dissertation

LANGUAGE: English

AB Unavailable

IT **Epoxidation catalysts**

(iron(III) porphyrin for alkenes)

IT 16009-13-5, Hemin

RL: **CAT (Catalyst use); USES (Uses)**

(catalysis by, of epoxidn. of alkenes)

L1 ANSWER 175 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:273484 HCAPLUS

DOCUMENT NUMBER: 120:273484

TITLE: Meso-aryl substituted metalloporphyrins supported on imidazole propyl gel (IPG). Catalytic activity in the oxidation of cyclohexane and characterization of iron porphyrin-IPG systems

AUTHOR(S): Iamamoto, Yassuko; Ciuffi, Katia Jorge; Sacco, Herica Cristina; Prado, Cynthia Maria C.; de Moraes, Margarida; Nascimento, Otaciro Rangel

CORPORATE SOURCE: Dep. Quim., Univ. Sao Paulo, Ribeirao Preto, Brazil

SOURCE: Journal of Molecular Catalysis (1994), 88(2), 167-76

CODEN: JMCADS; ISSN: 0304-5102

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The catalytic activities of Fe and Mn porphyrins with meso-aryl electron-withdrawing substituents in the hydroxylation of cyclohexane using PhIO as the oxygen donor were compared. The catalysts were used in three ways: in soln., supported on IPG, and supported on silica gel. Mn-porphyrin-IPG systems were better catalysts, giving 67% cyclohexanol yield, while the corresponding soln. system gives 17%. With the Fe porphyrin-IPG system, there was a decrease in the catalytic activity (25%), when compared to the soln. system. It was possible to understand, through UV-visible and EPR spectral characterization, that an excess of imidazole in the iron(III) porphyrin-IPG systems promoted partial catalyst deactivation due to the bis-imidazolyl coordination and redn. of iron(II). If the imidazole/Fe-porphyrin ratio decreased in the Fe-porphyrin-IPG, the yield increased to 60%. It was possible to recycle Mn and Fe-porphyrin-IPG systems 5 times without leaching of the supported catalyst, which resulted in very efficient systems with high turnovers.

IT Hydroxylation catalysts

Oxidation catalysts

(metalloporphyrin, imidazole Pr gel-supported, for cyclohexane)

IT 16456-81-8 32195-55-4 36965-71-6 85529-40-4 91042-27-2

91463-17-1

RL: **CAT (Catalyst use); USES (Uses)**

(catalysts, on imidazole Pr gel, for hydroxylation of cyclohexane)

L1 ANSWER 176 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:216421 HCAPLUS

DOCUMENT NUMBER: 120:216421

TITLE: Catalysis of μ -oxo-bisporphyrinatomanganese(III) for cyclohexane monooxygenation. (X)

AUTHOR(S): Guo, Cancheng; Liu, Lianying

CORPORATE SOURCE: Dep. Chem., Hunan Norm. Univ., Changsha, 410006, Peop.

SOURCE: Rep. China
Gaodeng Xuexiao Huaxue Xuebao (1993), 14(8), 1083-6
CODEN: KTHPDM; ISSN: 0251-0790

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The kinetics of the catalytic cyclohexane monooxygenation with PhIO at room temp. and in air atm. by the title compds. [TXPPMn(III)]₂O {TXPP = tetrakis[(un)substituted phenyl]porphyrinato; X = H, halo, alkyl, MeO} were reported. The substituent effect and reaction mechanism were discussed.

IT **Oxidation catalysts**

(.mu.-oxo-bisporphinatomanganese(III), for cyclohexane with iodosobenzene)

IT 12582-61-5 12650-83-8 **16456-81-8** 32195-55-4 152505-13-0
154089-44-8 154089-62-0 154089-63-1 154089-64-2 154089-65-3
154089-66-4 154089-67-5 154089-68-6

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for monooxygenation of cyclohexane with iodosobenzene)

L1 ANSWER 177 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:192251 HCAPLUS

DOCUMENT NUMBER: 120:192251

TITLE: Catalytic activity of hemin complexes with nitrogen-containing polymers in oxidation of cysteine and sulfide anion

AUTHOR(S): Chan Van Muih; Astanina, A. N.; Rudenko, A. P.

CORPORATE SOURCE: Mosk. Gos. Univ., Moscow, Russia

SOURCE: Vestnik Moskovskogo Universiteta, Seriya 2: Khimiya (1993), 34(5), 501-5
CODEN: VMUKA5; ISSN: 0579-9384

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The catalytic activity of two types of polymer-supported hemin systems were evaluated: (1) hemin covalently grafted at the double bond to acrylamide gel (cytochrome c analog) and (2) hemin coordinated to three-dimensional cross-linked polymeric ligand-ion exchangers contg. various functional groups - imidazole (cytochrome b analog), imino (cytochrome b analog), and pyridine. Catalytic activity for cysteine oxidn. decreased in the series (1) > (2)-imidazole > (2)-imino > (2)-pyridine. Catalyst (1) was also active in the oxidn. of Na₂S (E_a = 16.5 kJ/mol). Nuclear .gamma.-resonance spectra of (1) indicate a dimeric state of the porphyrin ring in the acrylamide gel; distortion of Fe coordination in the dimer may be responsible for catalytic activity.

IT **Oxidation catalysts**

(polymer-supported hemin analogs of cytochrome b and c, for cysteine and sulfide)

IT **16009-13-5D**, Hemin, polymer-supported

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, analogs of cytochrome b and c, oxidn. kinetics of cysteine and sulfide with)

L1 ANSWER 178 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:174474 HCAPLUS

DOCUMENT NUMBER: 120:174474

TITLE: Catalytic oxidations with hydrogen peroxide: new and selective catalysts

AUTHOR(S): Clerici, Mario G.

CORPORATE SOURCE: Eniricerche SpA, S. Donato Milanese, 20097, Italy
SOURCE: Studies in Surface Science and Catalysis (1993),
78(Heterogeneous Catalysis and Fine Chemicals III),
21-33
CODEN: SSCTDM; ISSN: 0167-2991
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review with 111 refs; recent results in the field of catalytic oxidns. with hydrogen peroxide are reviewed. Most effective catalysts fall into three categories: metal-org. compds., phase-transfer catalysts, and redox zeolites. Metalloporphyrins and Pt-phosphine complexes are representative of the first category. Mo and W polyoxometalates and related systems, in assocn. with phase transfer agents, belong to the second one. Titanium silicalite (TS-1) is the most studied redox zeolite. The oxidn. of nitrogen and sulfur compds. and Fenton-like reactions are not reviewed.

IT **Oxidation catalysts**
(for reactions with hydrogen peroxide)

IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(metal complexes, catalysts, for oxidn. with hydrogen peroxide)

L1 ANSWER 179 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:163159 HCAPLUS

DOCUMENT NUMBER: 120:163159

TITLE: Biomimetic oxidation of diphenyl sulfide with metalloporphyrin-O₂-NaBH₄ system

AUTHOR(S): Michida, Takashi; Kasuya, Yukako; Sayo, Hiroteru
CORPORATE SOURCE: Fac. Pharm. Sci., Kobe-Gakuin Univ., Kobe, 651-21, Japan

SOURCE: Chemical & Pharmaceutical Bulletin (1993), 41(8), 1462-4

CODEN: CPBTAL; ISSN: 0009-2363

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A P 450 model system consisting of metallo-meso-tetraphenylporphyrins, O₂ and NaBH₄ in basic soln. is described. It has three remarkable features; (1) dioxygen is activated on a metalloporphyrin; (2) the reductant is used effectively, i.e., the efficiency of the reductant, calcd. on the assumption that two electrons are consumed to produce an active two-electron oxidant in the catalytic cycle, is 37%; (3) the life of the catalyst is extremely long for a P 450 model system. The max. turnover is 336. When meso-tetraphenylporphyrinatomanganese(III) chloride was used as a catalyst in this system, di-Ph sulfide was oxidized stepwise to di-Ph sulfoxide and then to di-Ph sulfone. When meso-tetraphenylporphyrinatoiron(III) chloride was used as a catalyst, di-Ph sulfide was oxidized quant. to di-Ph sulfoxide.

IT **Oxidation catalysts**
(metalloporphyrins, for di-Ph sulfide)

IT **16456-81-8** 32195-55-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for biomimetic oxidn. of di-Ph sulfide)

L1 ANSWER 180 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:76992 HCAPLUS

DOCUMENT NUMBER: 120:76992

TITLE: Studying drug metabolic oxidation with biomimetic

metalloporphyrin systems: problems and solutions in the case of lidocaine

AUTHOR(S): Carrier, M. N.; Battioni, P.; Mansuy, D.
CORPORATE SOURCE: Lab. Chim. Biochim. Pharmacol. Toxicol., Univ. Rene-Descartes, Paris, 75270, Fr.
SOURCE: Bulletin de la Societe Chimique de France (1993), 130(3), 405-16
CODEN: BSCFAS; ISSN: 0037-8968

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The oxidn. of the drug lidocaine 1 (2,2-diethylamino-2',6'-dimethylacetanilide) by various metalloporphyrin systems mimicking cytochrome P 450 was studied. Systems using H2O2 or PhIO as oxidants and several homogeneous or supported Fe(III)- or Mn(III)-porphyrin catalysts in org. solvents led to products derived from the oxidn. of the tertiary amine function of 1. The secondary amine 2,6-Me2C6H3NHCOCH2NHet 2 is produced by an oxidative N-deethylation of 1, and was reported as a main in vitro and in vivo metabolite of 1. Other products were also formed either from further oxidns. of 2 or from reaction of 2 with acetaldehyde from the N-deethylation of 1. It was possible to improve the formation of 2 considerably either by trapping it with acetic anhydride in the reaction mixt. or by using some metalloporphyrins bound to hydrophobic polymers. Oxidn. of 1 at a site different from the amine function was achieved by performing the reaction in water at acidic pH. Oxidn. by magnesium perphthalate in the presence of a water-sol. Mn(III) porphyrin led selectively to the benzylic alc. 2,6-(HOCH2)MeC6H3NHCOCH2Net2 3 derived from the hydroxylation of a Me group of 1 and formed by cytochrome P450s of the 2B family. Thus, a proper choice of the model system led to conditions of selective formation of 2, either in its N-acetylated form or combined with acetaldehyde, or 3.

IT **Oxidation catalysts**
(metalloporphyrins, for lidocaine)

IT 16456-81-8 36965-71-6 70649-54-6 91042-27-2 91463-17-1
120676-09-7
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for oxidn. of lidocaine)

L1 ANSWER 181 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:76659 HCAPLUS
DOCUMENT NUMBER: 120:76659
TITLE: Catalytic oxidation of saturated and aromatic hydrocarbons by tert-butyl hydroperoxide in the presence of rare earth porphyrin complexes

AUTHOR(S): Vedernikov, A. N.; Kochnev, D. O.; Suslov, D. A.; Solomonov, B. N.
CORPORATE SOURCE: Kazan. Gos. Univ., Russia
SOURCE: Doklady Akademii Nauk (1993), 330(2), 200-3 [Chem.]
CODEN: DAKNEQ; ISSN: 0869-5652

DOCUMENT TYPE: Journal
LANGUAGE: Russian
OTHER SOURCE(S): CASREACT 120:76659

AB Oxidn. of hydrocarbons, such as cyclohexane, adamantane, and PhMe, by Me3COOH in C6H6 catalyzed by 15 title complexes was studied. The overall yield of products is linearly dependent on catalyst concn. in the oxidn. of hydrocarbons catalyzed by (meso-tetraphenylporphyrinato)lutetium(III) hydroxide. The porphyrin ligand is an essential part of the catalyst.

IT **Oxidation catalysts**

- (rare-earth porphyrin complexes, for hydrocarbons)
- IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(rare earth metal complexes,
catalysts, for oxidn. of hydrocarbons with tert-Bu hydroperoxide)
- L1 ANSWER 182 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:7925 HCAPLUS
DOCUMENT NUMBER: 120:7925
TITLE: Is hole transfer involved in metalloporphyrin-catalyzed epoxidation?
AUTHOR(S): Kim, Taisun; Mirafzal, Gholam A.; Liu, Jianping; Bauld, Nathan L.
CORPORATE SOURCE: Dep. Chem. Biochem., Univ. Texas, Austin, TX, 78712, USA
SOURCE: Journal of the American Chemical Society (1993), 115(17), 7653-64
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 120:7925
- AB The possibility of a hole-transfer mechanism for the epoxidn. of alkenes catalyzed by metalloporphyrins (MP) has been investigated. In the first approach, the results of MP-catalyzed epoxidn. of a series of substrates were compared to the corresponding results of epoxidn. under conditions where cation radicals are demonstrably formed (using a triarylammonium salt catalyst). In sharp contrast to the MP-catalyzed epoxidns. (using M = Mn), the hole-catalyzed epoxidns. do not generate carbonyl compds. and alcs. as byproducts and are rigorously stereospecific. These results are of interest primarily in that they provide support for the assumption that cation radicals can be efficiently and stereospecifically epoxidized by appropriate oxygen-transfer agents. However, the differences in product compn. and stereochem. for MP-vs. hole-catalyzed epoxidn. cannot be construed mechanistically to rule out a cation radical mechanism for the former, esp. because the oxygen-transfer agents are different in the two reaction systems. In a second, and more rigorous, approach, a careful search for transient cation radical intermediates in MP-catalyzed epoxidns. (using M = Mn and Fe) was carried out using newly developed cation radical probe reactions. Cation radical intermediates were, in fact, not detected and, if involved, must be extremely short lived (<2 .times. 10⁻¹² s). The results of this work, taken as a whole, are reasonably construed to suggest that, even for the relatively easily ionizable alkene functionalities present in many of the probe substrates, a hole-transfer mechanism is probably not operative in MP-catalyzed epoxidns.
- IT **Epoxidation catalysts**
(metalloporphyrins, for alkenes and unsatd. compds., kinetics and mechanism and stereochem. of)
- IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(metal complexes, catalysts, for epoxidn. of unsatd. compds., kinetics and mechanism with)
- IT **Epoxidation catalysts**
(stereoselective, hole transfer agents as, mechanism with)
- IT **16456-81-8** 32195-55-4, 5,10,15,20-Tetraphenylporphyrinato manganese(III) chloride 91042-27-2 91463-17-1
RL: **CAT (Catalyst use); USES (Uses)**

(catalyst, for epoxidn. of unsatd. compds., regio- and stereochem. in relation to hole transfer mechanism vs. mechanism with)

L1 ANSWER 183 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:602839 HCAPLUS

DOCUMENT NUMBER: 119:202839

TITLE: Heterolytic oxygen-oxygen bond cleavage of peroxy acid and effective alkane hydroxylation in hydrophobic solvent mediated by an iron porphyrin coordinated by thiolate anion as a model for cytochrome P-450

AUTHOR(S): Higuchi, Tsunehiko; Shimada, Kousei; Maruyama, Naho; Hirobe, Masaaki

CORPORATE SOURCE: Fac. Pharm. Sci., Univ. Tokyo, Tokyo, 113, Japan

SOURCE: Journal of the American Chemical Society (1993), 115(16), 7551-2

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB I [L = SCH₂(o-phenylene)OCH₂, R = NHCOCMe₃] (II) cleaves the O-O bond peroxy acids heterolytically even in highly hydrophobic solvents, such as benzene. Thus, the oxidn. of 2,4,6-tri-tert-butylphenol by PhCH₂CO₃H, mediated by II, gave PhCH₂CO₂H quant. via heterolytic O-O bond cleavage. In contrast, tetraphenylporphyrin chloride under the same conditions mainly catalyzed the formation of PhMe, PhCH₂OH, and CO₂ resulting from homolytic O-O bond cleavage. The active species formed by cleavage of the O-O bond of peroxy acid-II was examd. by the hydroxylation of adamantane. The yield of adamantanol was 88%.

IT **Oxidation catalysts**

(iron porphyrins, for tri-tert-butylphenol by peroxy acids)

IT **16456-81-8** 150440-12-3

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for oxidn. of tri-tert-butylphenol or hydroxylation of alkanes)

L1 ANSWER 184 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:568350 HCAPLUS

DOCUMENT NUMBER: 119:168350

TITLE: Oxygenation reactions catalyzed by supported sulfonated metalloporphyrins

AUTHOR(S): Meunier, Bernard; Camestrini, Sandro

CORPORATE SOURCE: Lab. Chim. Coord., Cent. Natl. Rech. Sci., Toulouse, 31077, Fr.

SOURCE: ACS Symposium Series (1993), 523(Catalytic Selective Oxidation), 58-66

CODEN: ACSMC8; ISSN: 0097-6156

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 14 refs. A new trend in the field of oxidns. catalyzed by metalloporphyrin complexes is the use of these biomimetic catalysts on various supports: ion-exchange resins, silica, alumina, zeolites or clays. Efficient supported metalloporphyrin catalysts have been developed for the oxidn. of peroxidase-substrates, the epoxidn. of olefins, and the hydroxylation of alkanes.

IT **Epoxidation catalysts**

Oxidation catalysts

(sulfonated metalloporphyrins, supported)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**
 (sulfonated, **metal complexes**, catalysts, for
 oxygenation reactions)

L1 ANSWER 185 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1993:559748 HCAPLUS
 DOCUMENT NUMBER: 119:159748
 TITLE: Allylic oxidation of olefins by oxygen in the presence
 of transition metal porphyrin catalysts
 INVENTOR(S): Lyons, James E.; Ellis, Paul E., Jr.
 PATENT ASSIGNEE(S): Sun Co., Inc., USA
 SOURCE: Eur. Pat. Appl., 7 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 527623	A2	19930217	EP 1992-307284	19920810
EP 527623	A3	19930310		
EP 527623	B1	19961016		
R: BE, DE, FR, GB, IT, NL				
CA 2074880	AA	19930213	CA 1992-2074880	19920729
JP 05246913	A2	19930924	JP 1992-231518	19920807
PRIORITY APPLN. INFO.:			US 1991-743627	19910812

OTHER SOURCE(S): CASREACT 119:159748; MARPAT 119:159748

AB A process for the allylic oxidn. of olefins comprises treatment with oxygen-contg. gas and a catalyst having formula A-[M]-X (M = Fe, Mn, Co, Cu, Ru, Cr; [] = a porphyrin ligand; X = electron-withdrawing substituent, e.g., F, NO₂, replacing hydrogen in the porphyrin ligand; A = anion, or is absent). E.g., cyclohexene was oxidized by oxygen at room temp. in the presence of Fe(TPPF₂₀)OH (TPPF = tetrakis(perfluorophenyl)porphyrinato) in 40 min. to give primarily 2-cyclohexene-1-ol and 2-cyclohexene-1-one products with some epoxide byproduct at a rate of 4000 mol product per mol catalyst; the exothermic reaction raised temp. from ambient to 70.degree..

IT **Oxidation catalysts**

(allylic, metal porphyrin complexes, for olefins by oxygen)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**
 (**transition metal complexes**, catalysts,
 for the allylic oxidn. of olefins)

L1 ANSWER 186 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1993:538580 HCAPLUS
 DOCUMENT NUMBER: 119:138580
 TITLE: Catalytic activity of rare earth porphyrin complexes
 in the oxidation of styrene by tert-butyl
 hydroperoxide
 AUTHOR(S): Vedernikov, A. N.; Kochnev, D. O.; Solomonov, B. N.
 CORPORATE SOURCE: Kazan. Gos. Univ., Russia
 SOURCE: Zhurnal Obshchei Khimii (1992), 62(12), 2663-9
 CODEN: ZOKHA4; ISSN: 0044-460X
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 OTHER SOURCE(S): CASREACT 119:138580

AB Al(III) and Sc(III) porphyrin complexes displayed the highest catalytic activity for styrene epoxidn. (under anaerobic conditions) with tert-BuOOH, reflecting the high Lewis acidity of the ions for coordinating and activation of the oxidant for reaction with styrene. PhCHO yield increased when the reaction was conducted in the presence of O₂, whereas all oxidn. ceased in the presence of a radical inhibitor.

IT **Epoxidation catalysts**

Oxidation catalysts

(rare earth metal porphyrin complexes, for styrene with tert-Bu hydroperoxide)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(rare earth metal complexes, catalysts, for oxidn. and epoxidn. of styrene with tert-Bu hydroperoxide)

IT 7440-22-4D, Silver, tetraphenylporphyrin complexes **14074-80-7**
14172-92-0 32195-55-4 59069-22-6 60452-87-1 102941-88-8
115677-91-3 138797-83-8 138797-84-9 138798-13-7 138798-14-8
149694-15-5

RL: **CAT (Catalyst use); USES (Uses)**

(catalysts, for oxidn./epoxidn. of styrene with tert-Bu hydroperoxide)

L1 ANSWER 187 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:516529 HCAPLUS

DOCUMENT NUMBER: 119:116529

TITLE: Activation of alkanes: the biomimetic approach

AUTHOR(S): Mansuy, D.

CORPORATE SOURCE: Lab. Chim. Biochim. Pharmacol. Toxicol., Univ. Rene Descartes, Paris, 75270, Fr.

SOURCE: Coordination Chemistry Reviews (1993), 125(1-2), 129-41

CODEN: CCHRAM; ISSN: 0010-8545

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 23 refs. Two kinds of biomimetic systems based on metalloporphyrin catalysts are able to perform the selective oxidn. of alkanes. The first systems assoc. a Fe(III) or Mn(III) porphyrin catalyst and an oxygen atom donor (PhIO, H₂O₂ and O₂ + a reducing agent). Their mechanisms are of the monooxygenase type and involve the transfer of an oxygen atom from high-valent metal-oxo active species to the alkane. Iron porphyrins bearing electron-withdrawing substituents on the .beta.-pyrrole positions are highly active for alkane hydroxylation. The second systems oxidize alkanes to the corresponding ketones (and alcs.) by O₂ itself, without consumption of any reducing agent, in the presence of a (porphyrin) Fe(III)-OH catalyst after photochem. or thermal activation of its Fe-OH bond. Oxidn. of alkanes by these systems seem to involve a dioxygenase-like mechanism with radicals like OH as active species and the intermediate formation of alkylperoxy radicals.

IT Hydroxylation catalysts

Oxidation catalysts

(biomimetic metalloporphyrins, for alkanes)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(metal complexes, biomimetic catalysts, for alkane oxidn. and hydroxylation)

L1 ANSWER 188 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:495029 HCAPLUS
DOCUMENT NUMBER: 119:95029
TITLE: Oxygenation of aromatic aldehydes by the
metallotetraphenylporphyrin-sodium hypochlorite system
AUTHOR(S): Li, Cunfa; Zheng, Weizhong; Wang, Xianyuan; Li,
Guangnian
CORPORATE SOURCE: Chengdu Inst. Org. Chem., Acad. Sin., Chengdu, 610015,
Peop. Rep. China
SOURCE: Youji Huaxue (1993), 13(2), 139-45
CODEN: YCHHDX; ISSN: 0253-2786
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB The catalytic behaviors of Mn(III)-porphyrin in the oxidn. of arom.
aldehydes with NaOCl as oxidant under two-phase condition have been
investigated. When TPPMn(III)OAc (TPP = tetraphenylporphyrin),
TPPFe(III)Cl, TPPCo(II), and TPPNi(II) were used as catalysts, only
TPPMn(III)OAc and TPPFeCl exhibit distinct activities. With TPPMn(III)OAc
as catalyst, UV - visible spectral changes of the fourth band from 425 nm
to 478 nm were obsd. during the course of the oxygen transfer, suggesting
that oxo-manganese(V) porphyrin is the key element for the oxygenation of
aldehydes. Electron withdrawing para-substituents of TPPMnOAc lead to an
increase in activities and stabilities. Electron withdrawing ortho
substituents increase the stabilities of manganese porphyrins, but
decrease their activities.

IT **Oxidation catalysts**

(metallotetraphenylporphyrin, for benzaldehyde with sodium
hypochlorite)

IT **14172-90-8** 14172-92-0 **16456-81-8** 58356-65-3
99324-30-8 101565-35-9 149094-98-4 149094-99-5 149095-00-1
149125-10-0 149125-11-1 149125-12-2 149125-13-3

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for oxygenation of benzaldehyde with sodium hypochlorite)

L1 ANSWER 189 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:472282 HCAPLUS
DOCUMENT NUMBER: 119:72282
TITLE: Oxygen activation by iron(III)-porphyrin/NaBH₄/Me₄NOH
system as cytochrome P-450 model. Oxygenation of
olefin, N-dealkylation of tertiary amine, oxidation of
sulfide, and oxidative cleavage of ether bond
AUTHOR(S): Mori, Takashi; Santa, Tomofumi; Higuchi, Tsunehiko;
Mashino, Tadahiko; Hirobe, Masaaki
CORPORATE SOURCE: Fac. Pharm. Sci., Univ. Tokyo, Tokyo, 113, Japan
SOURCE: Chemical & Pharmaceutical Bulletin (1993), 41(2),
292-5
CODEN: CPBTAL; ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 119:72282

AB Oxygenation of olefin, N-dealkylation of tertiary amine, oxidn. of
sulfide, and oxidative cleavage of ether bond were conducted with
tetraphenylporphyrinatoiron(III) (Fe³⁺+TPPCL), NaBH₄, Me₄NOH, and mol.
dioxygen in benzene-methanol soln. Fe³⁺+TPPCL, NaBH₄, and mol. dioxygen
were essential for these reactions and the yields were decreased when
Me₄NOH was absent. Olefins were converted to alcs., which were not
produced from the corresponding epoxides under the same conditions. In
styrene oxygenation, an electron-donating substituent on the substrate

decreased the reactivity, whereas in N,N-dimethylaniline demethylation, it enhanced the reactivity. Despite the use of the same reagents, the key intermediates of these two reactions are different. Fe₂+TPP-.sigma.-alkyl complexes produced from Fe₃+TPP-Cl, olefin, and NaBH₄ were identified as intermediates under anaerobic conditions. Fe₂+TPP-.sigma.-alkyl complex reacted with mol. dioxygen to give oxygenated products. Examn. of the relative reactivities of p-substituted N,N-dimethylanilines in the NaBH₄ reaction system revealed that the demethylation proceeded via one-electron abstraction and that the reactive species of the demethylation reactions seems to be an iron-oxenoid.

IT **Oxidation catalysts**

(iron(III)-porphyrin system, for olefins and sulfide)

IT **16456-81-8**

RL: **CAT (Catalyst use); USES (Uses)**

(catalyst, with borohydride and ammonium hydroxide, for oxidn. of olefins and sulfide, dealkylation of tertiary amine, and oxidative cleavage of ether)

L1 ANSWER 190 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:416913 HCAPLUS

DOCUMENT NUMBER: 119:16913

TITLE: Studies on oxidation of arene by superoxide ions electrocatalyzed by metallo-porphyrins

AUTHOR(S): Wang, S. F.; Lu, H. S.; Zhang, S. B.; Lin, Y. J.

CORPORATE SOURCE: Dep. Chem., JiLin Univ., Changchun, 130023, Peop. Rep. China

SOURCE: Journal of Applied Electrochemistry (1993), 23(4), 387-9

CODEN: JAELEBJ; ISSN: 0021-891X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The electrocatalytic activity of metalloporphyrins in the oxidn. of p-nitrotoluene with superoxide ions from the electrochem. redn. of oxygen was studied. The 3-fold increase in the electrooxidn. rate was obsd. for oxidn. with electrogenerated superoxide. The oxidn. can proceed under mild conditions, it does not require any oxidizing agents and it can be used more widely in org. synthesis.

IT **Oxidation catalysts**

(electrochem., metal porphyrins, for nitrotoluene, using electrogenerated superoxide)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(metal complexes, catalysts, for nitrotoluene oxidn., with electrogenerated superoxide)

IT **14172-90-8** 16591-56-3, Iron tetraphenylporphyrin 31004-82-7.

RL: **CAT (Catalyst use); USES (Uses)**

(catalyst, for oxidn. of nitrotoluene with electrogenerated superoxide)

L1 ANSWER 191 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:212776 HCAPLUS

DOCUMENT NUMBER: 118:212776

TITLE: Asymmetric epoxidation and cyclopropanation of alkenes catalyzed by "chiral wall" metalloporphyrins

AUTHOR(S): O'Malley, Sean

CORPORATE SOURCE: Univ. Texas, Austin, TX, USA

SOURCE: (1991) 130 pp. Avail.: Univ. Microfilms Int., Order No. DA9212603

DOCUMENT TYPE: From: Diss. Abstr. Int. B 1992, 52(12, Pt. 1), 6400
LANGUAGE: Dissertation
English

AB Unavailable

IT **Epoxidation catalysts**
(metalloporphyrins, for alkenes)

IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(metal complexes, as catalysts for asym. epoxidn.
and cyclopropanation of alkenes)

L1 ANSWER 192 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:80473 HCAPLUS

DOCUMENT NUMBER: 118:80473

TITLE: Novel method for preparation of 4-oxo-2-alkenoic acid
derivatives from 2,4-alkadienoic acid derivatives by
cobalt(II) porphyrin-catalyzed oxygenation

AUTHOR(S): Matsushita, Yohichi; Sugamoto, Kazuhiro; Matsui,
Takanao

CORPORATE SOURCE: Fac. Eng., Miyazaki Univ., Miyazaki, 889-21, Japan

SOURCE: Chemistry Letters (1992), (11), 2165-8

CODEN: CMLTAG; ISSN: 0366-7022

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 118:80473

AB 2,4-Alkadienoic acid derivs., such as ester, amide, and nitrile, were
converted to the corresponding 4-oxo-2-alkenoic acid derivs. in good
yields by the oxygenation with oxygen and triethylsilane in the presence
of a catalytic amt. of [5,10,15,20-tetra(2,6-dichlorophenyl)-
porphinato]cobalt(II) followed by acetylation. Thus, MeCH:CHCH:CHCO₂Et
was converted to MeCH₂COCH:CHCO₂Et in 82% yield.

IT **Oxidation catalysts**
(porphinatocobalt complexes, for alkadienoic acid derivs.)

IT **14172-90-8** 17632-19-8 19496-19-6 120882-91-9

RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for oxygenation of alkenoic acid derivs.)

L1 ANSWER 193 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:68779 HCAPLUS

DOCUMENT NUMBER: 118:68779

TITLE: Conducting polymer film electrode with catalytic sites

AUTHOR(S): Mizutani, Fumio; Iijima, Seiichiro; Tanabe, Yoshikazu;
Asai, Michihiko; Tanaka, Yoshio

CORPORATE SOURCE: Res. Inst. Polym. Text., Tsukuba, 305, Japan

SOURCE: Kenkyu Hokoku - Sen'i Kobunshi Zairyo Kenkyusho
(1992), 171, 15-21

CODEN: SKZHA8; ISSN: 0371-0807

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB Small particles (Co(II) phthalocyanine (CoPc) or platinum black) or
neutral mols. (Co(II) meso-tetraphenylporphine (CoTPP)) were immobilized
as catalytic sites in a conducting polymer film-modified electrode as
follows: firstly, a glassy carbon electrode was coated with a poly(vinyl
chloride) (PVC) film contg. the catalysts and, secondly, the insulating
PVC matrix was converted into a conducting one of PVC-polypyrrole mixt. by
the oxidative polymn. of pyrrole on the PVC-coated electrode. The
CoPc-modified electrode catalyzed the redn. of O₂ in an aq. acidic soln.,

and H₂O rather than H₂O₂ was the product of the redn. The CoTPP-modified electrode and Pt black-modified one exhibited catalytic activities for the redn. of O₂ and the redn. and oxidn. of H⁺/H₂ system, resp.

IT **Oxidation catalysts**

(electrochem., cobalt tetraphenylporphine immobilized in PVC with conducting polypyrrole layer for hydrogen)

IT **14172-90-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst from immobilized, in PVC with polypyrrole layer, for redn. of hydrogen ion and oxygen and oxidn. of hydrogen)

L1 ANSWER 194 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:21738 HCAPLUS

DOCUMENT NUMBER: 118:21738

TITLE: Oxidation of hydrocarbons with dioxygen

AUTHOR(S): Haber, J.; Mlodnicka, T.

CORPORATE SOURCE: Inst. Catal. Surf. Chem., Pol. Acad. Sci., Krakow, Pol.

SOURCE: Journal of Molecular Catalysis (1992), 74(1-3), 131-41
CODEN: JMCADS; ISSN: 0304-5102

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB Activation of mol. oxygen by binding to an appropriate transition-metal center at the surface of a solid and in a complex, as well as the properties of the active, oxygen-contg. species, are reviewed with 30 refs. At oxide surfaces metal-oxo groups show strongly nucleophilic properties; in porphyrin complexes their character is modified from nucleophilic to electrophilic by introduction of appropriate substituents and axial ligands. The activities of some metalloporphyrin catalysts in the liq.-phase epoxidn. and hydroxylation of hydrocarbons are given. The influence of such factors as type of metal center and character of the peripheral substituents and axial ligands on the electrophilic and nucleophilic behavior of the metal-oxo species is discussed.

IT **Epoxidation catalysts**

Hydroxylation catalysts

(for hydrocarbons, mechanism with)

IT **Oxidation catalysts**

(aut-, for hydrocarbons, mechanism with)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(metal complexes, catalysts, for epoxidn. and hydroxylation of hydrocarbons in liq. phase under autoxidative conditions, mechanism with)

L1 ANSWER 195 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:650744 HCAPLUS

DOCUMENT NUMBER: 117:250744

TITLE: Selective oxygenation of hydrocarbons and sulfoxidation of thioethers by dioxygen with a Mn-porphyrin-based cytochrome P450 model system using zinc as electron donor

AUTHOR(S): Lu, W. Y.; Bartoli, J. F.; Battioni, P.; Mansuy, D.

CORPORATE SOURCE: Lab. Chim. Biochem. Pharmacol. Toxicol., Univ. Paris V, Paris, 75270, Fr.

SOURCE: New Journal of Chemistry (1992), 16(5), 621-8
CODEN: NJCHE5; ISSN: 0398-9836

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 117:250744

AB Cyclooctene epoxidn. by O₂ occurs, with consumption of reducing equivs. from Zn and protons from acetic acid, in the presence of two catalysts, Mn(TPP)Cl (H₂TPP = 5,10,15,20-tetraphenylporphyrin) and 1-methylimidazole (1-MeIm). A comparative study made on ten different Mn(III) or Fe(III) porphyrin catalysts, ten nitrogen base cocatalysts and various carboxylic acids showed that the most efficient system involves Mn(TPP)Cl, 1-MeIm and CH₃COOH in addn. to O₂ and Zn in a CH₃CN:CH₂Cl₂ mixt. This system selectively epoxidizes 2-methylhept-2-ene, cyclohexene, (+)-limonene, cis-stilbene and .alpha.-ionone with yields based on Zn between 34 and 58% and rates between 1 and 3 turnovers per min. It also epoxidizes 1-nonene, a less reactive alkene, and oxidizes alkanes like cyclooctane, cyclohexane, adamantane, indan, tetralin and heptane to the corresponding alcs. and ketones, but with lower yields (between 1 and 36%). Thioethers are selectively oxidized to the corresponding sulfoxides with yields up to 68%. The system exhibits a stereochem. for cis- and trans-stilbene epoxidn., a regioselectivity for the oxidn. of cyclohexene, limonene and heptane, and a chemoselectivity for the oxidn. of a cyclooctene-cyclooctane mixt., almost identical to those of the Mn(TPP)Cl-PhIO-1-MeIm system. This indicates that the Mn(TPP)Cl-O₂-Zn-AcOH-1-MeIm system involves a (1-MeIm)Mn(V):O active oxygen species. This system was successfully used for the conversion of .alpha.-ionone to the corresponding epoxides and allylic ketone and of di-Bu thioether to its sulfoxide with high yields and without any denaturation of the catalyst.

IT **Oxidation catalysts**

(manganese porphyrin and methylimidazole, for hydrocarbons and thioethers)

IT **Epoxidation catalysts**

(manganese-porphyrin and methylimidazole, for alkenes)

IT **16456-81-8** 61916-94-7 62613-31-4 79968-43-7 85939-49-7
91042-27-2 91463-17-1 97057-20-0

RL: **CAT (Catalyst use);** USES (Uses)

(catalysts, for epoxidn. of cyclooctene)

L1 ANSWER 196 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:634469 HCAPLUS

DOCUMENT NUMBER: 117:234469

TITLE: Immobilized hemin catalyst in oxidation processes,
III. Oxidation of cysteine

AUTHOR(S): Zub, Yu. L.; Yakubovich, T. N.; Potapov, G. P.

CORPORATE SOURCE: Inst. Surf. Chem., Kiev, 252650, USSR

SOURCE: Studies in Surface Science and Catalysis (1992),
72(New Dev. Sel. Oxid. Heterog. Catal.), 461-7
CODEN: SSCTDM; ISSN: 0167-2991

DOCUMENT TYPE: Journal

LANGUAGE: English

AB 3-Aminopropylpolysiloxane prepd. by the hydrolytic polycondensation of Si(OEt)₄ and (EtO)₃Si(CH₂)₃NH₂ is a space-crosslinked polymer with functional amino groups on its surface. Hemin [a complex of Fe(III) with protoporphyrin IX] was attached to the new matrix with participation of the latter. The resulting catalyst had a high efficiency in the reaction of cysteine with O₂.

IT **Oxidation catalysts**

(aut-, polymer bound hemin catalyst, for cysteine, kinetics with)

IT 78-10-4D, Tetraethoxysilane, hemin bound to hydrolytic polycondensation product of 3-aminopropyl(triethoxy)silane with 919-30-2D,

3-Aminopropyl(triethoxy)silane, hemin bound to hydrolytic polycondensation product of tetraethoxysilane with **16009-13-5D**, Hemin, bound to hydrolytic polycondensation product of 3-aminopropyl(triethoxy)silane with tetraethoxysilane

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for autoxidn. of cysteine, kinetics and efficiency with)

L1 ANSWER 197 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:633238 HCAPLUS

DOCUMENT NUMBER: 117:233238

TITLE: Metalloporphyrin-catalyzed olefin epoxidation and molecular orbital study

AUTHOR(S): Yeo, Hwhan Jin; Sin, Hyun Chun

CORPORATE SOURCE: Teach. Coll., Kyungpook Natl. Univ., Taegu, 702-701, S. Korea

SOURCE: Journal of the Korean Chemical Society (1992), 36(4), 558-64

CODEN: JKCSEZ; ISSN: 0418-2472

DOCUMENT TYPE: Journal

LANGUAGE: Korean

AB Product yields were detd. for the reaction of styrene with sodium hypochlorite (NaOCl) in CH₂Cl₂ with various substituted manganese porphyrin complexes as catalysts. In the presence of the electron withdrawing group and ortho-substituted manganese porphyrin complexes, reaction rate and epoxide selectivity are increased. Also reaction rate and epoxide selectivity are largely increased by the presence of imidazole which behaves as axial ligand of the manganese porphyrin complexes. By the kinetic study with Michaelis-Menten equation, the factor significantly affected by catalytic ability is K_m value. A large binding affinity consists with the low K_m. With theor. anal. by EHMO calcn., the results are in good agreement with exptl. data.

IT **Epoxidation catalysts**

(metalloporphyrins, for styrene with sodium hypochlorite)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, catalysts, for styrene epoxidn. with hypochlorite)

L1 ANSWER 198 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:570880 HCAPLUS

DOCUMENT NUMBER: 117:170880

TITLE: Porphyrin-catalyzed degradation of chlorinated phenols and nitro-substituted toluenes

AUTHOR(S): Hasan, Saleem; Cho, Jeong Guk; Sublette, Kerry L.; Pak, Daewon; Maule, Andrew

CORPORATE SOURCE: Cent. Environ. Res. Technol., Univ. Tulsa, Tulsa, OK, 74104, USA

SOURCE: Journal of Biotechnology (1992), 24(2), 195-201

CODEN: JBITD4; ISSN: 0168-1656

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Porphyrin-metal complexes have been used to catalyze the redn. of nitro-substituted toluenes to the corresponding amines as a preparatory step to enhance biodegradability. Dithiothreitol was used as a reducing agent. Complete conversion of 2-nitro-, 4-nitro- and 2,4-dinitrotoluene was obsd. with transient accumulation of nitroso intermediates. 2,4,6-Trichlorophenol was oxidized by tert-Bu hydroperoxide in a reaction

catalyzed by an iron-centered porphyrin. All org. chlorine was converted to chloride ion.

IT **Oxidation catalysts**

(iron hematoporphyrin, for trichlorophenol)

IT **15489-90-4, Hematin**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of trichlorophenol)

L1 ANSWER 199 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:570465 HCAPLUS

DOCUMENT NUMBER: 117:170465

TITLE: Metalloporphyrins as versatile catalysts for oxidation reactions and oxidative DNA cleavage

AUTHOR(S): Meunier, Bernard

CORPORATE SOURCE: Lab. Chim. Coord., CNRS, Toulouse, 31077, Fr.

SOURCE: Chemical Reviews (Washington, DC, United States) (1992), 92(6), 1411-56

CODEN: CHREAY; ISSN: 0009-2665

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with >577 refs.

IT **Oxidation catalysts**

(metalloporphyrins)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, catalysts, for oxidn. reactions and oxidative DNA cleavage)

L1 ANSWER 200 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:490056 HCAPLUS

DOCUMENT NUMBER: 117:90056

TITLE: The isotopomeric (Z)- and (E)-2,3-dimethyl(1,1,1,4,4,4-2H6)but-2-enes: mechanistic probes for stereospecific epoxidation

AUTHOR(S): Mueller, Paul; Pfyffer, Jean

CORPORATE SOURCE: Dep. Chim. Org., Univ. Geneve, Geneva, CH-1211, Switz.

SOURCE: Helvetica Chimica Acta (1992), 75(3), 745-50

CODEN: HCACAV; ISSN: 0018-019X

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 117:90056

AB By unambiguous methods, (Z)- (I) and (E)-(CD3)CMe:CMe(CD3) were synthesized and converted to the epoxides cis- and trans-II with 3-chloroperbenzoic acid. Both the isotopomeric olefins and the epoxides were detected sep. by 1H NMR at 400 MHz. Epoxidn. of I with [RhCl(PPh3)3]/cumene hydroperoxide resulted in a 1:1 mixt. of cis- and trans-II, while reaction of I with [FeIII(tpp)]Cl (tpp = tetraphenylporphyrin)/PhIO gave only cis-II.

IT **Epoxidation catalysts**

(stereoselective, iron porphyrin, for deuterated dimethylbutene by iodosobenzene)

IT **16456-81-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for stereospecific epoxidn. of dimethylbutene)

L1 ANSWER 201 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:434430 HCAPLUS

DOCUMENT NUMBER: 117:34430
TITLE: Origins of remarkable catalytic activity of cobalt tetraphenylporphyrin supported on some titanias
AUTHOR(S): Mochida, Isao; Kamo, Tetsuro; Fujitsu, Hiroshi
CORPORATE SOURCE: Inst. Adv. Mater., Kyushu Univ., Kasuga, 816, Japan
SOURCE: Langmuir (1992), 8(3), 909-14
CODEN: LANGD5; ISSN: 0743-7463
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Catalytic activities of CoTPP (cobalt tetraphenylporphyrin) supported on 2 kinds of titania, TiO₂-120s and TiO₂-300, against CO-O₂, NO-CO, and NO-H₂ reactions were found to depend remarkably on the TiO₂ and the conditions of preheat treatment in vacuo. CoTPP/TiO₂-120s-250 (pretreated at 250.degree.) exhibited greater activities for the former 2 reactions than did CoTPP/TiO₂-300-200 (pretreated at 200.degree.), whereas the latter catalyst exhibited a greater activity for the last reaction. Detailed studies on reaction kinetics, single and competitive adsorption, catalyst poisons, ESR, thermogravimetry during the pretreatment, and the soly. of the supported complex were performed in order to reveal origins of such catalytic performances of CoTPP complex on the TiO₂ surface. Oxidative oligomerization of CoTPP into dimeric or trimeric forms and O vacancy on the reducible TiO₂ surface were induced by the pretreatment in the former catalyst to provide remarkable activation abilities against CO, NO, and O₂. In contrast, the original structure of CoTPP is more suitable for the formation of an anion radical in the ligand through the electron donation from the properly dehydrated surface of the rather stable TiO₂ to exhibit better ability for H₂.
IT **Oxidation catalysts**
(cobalt tetraphenylporphyrin-titania, for carbon monoxide, effect of support material on activity of)
IT **14172-90-8**
RL: **CAT (Catalyst use); USES (Uses)**
(catalysts from titania and, for oxidn. of carbon monoxide and redn. of nitric oxide, effect of support material on activity of)
L1 ANSWER 202 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:425726 HCAPLUS
DOCUMENT NUMBER: 117:25726
TITLE: Manganese porphyrins adsorbed or intercalated in different mineral matrixes: preparation and compared properties as catalysts for alkene and alkane oxidation
AUTHOR(S): Barloy, L.; Lallier, J. P.; Battioni, P.; Mansuy, D.; Piffard, Y.; Tournoux, M.; Valim, J. B.; Jones, W.
CORPORATE SOURCE: Lab. Chim. Biochim. Pharmacol. Toxicol., Univ. Rene Descartes, Paris, 75270, Fr.
SOURCE: New Journal of Chemistry (1992), 16(1-2), 71-80
CODEN: NJCHE5; ISSN: 0398-9836
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Various supported Mn(III)-porphyrins were prepd. either by adsorption of tetracationic Mn-porphyrins on silica or of tetraanionic Mn-Porphyrins on alumina, or by ion-exchange of these Mn-porphyrins with the layered minerals, montmorillonite, phosphatoantimonic acids and layered dihydroxides. The former catalysts involved a Mn(III)-porphyrin simply adsorbed onto the mineral surface by strong ionic interactions and were stable for days, without release of their Mn-porphyrin, in CH₂Cl₂ and

CH₃CN. In the latter supported catalysts, the Mn(III)-porphyrin was exchanged with interlayer ions (with a particularly strong interaction between the Mn-porphyrin and montmorillonite) and these catalysts were even stable in CH₃OH and H₂O. Some of these compds. were very good catalysts for cyclooctene epoxidn. and alkane hydroxylation by PhIO. Mn(III)[tetrakis-(4-N-methylpyridiniumyl)porphyrin] supported on silica and on montmorillonite were particularly efficient catalysts for alkane hydroxylation and much better than the starting Mn-porphyrin for the hydroxylation of the poorly reactive heptane and pentane. In addn., the catalyst supported on montmorillonite exhibited a marked shape selectivity in favor of small linear alkanes like pentane when compared to the bulky substrate adamantane.

IT **Epoxidation catalysts**
(manganese porphyrins, supported, for cyclooctene)

IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(**manganese complexes**, catalysts, supported, for
alkane and alkene oxidns.)

L1 ANSWER 203 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:247466 HCAPLUS

DOCUMENT NUMBER: 116:247466

TITLE: Hematin as a peroxidase substitute in hydrogen
peroxide determinations

AUTHOR(S): Zhang, Genfa; Dasgupta, Purnendu K.

CORPORATE SOURCE: Dep. Chem. Biochem., Texas Tech Univ., Lubbock, TX,
79409-1061, USA

SOURCE: Analytical Chemistry (1992), 64(5), 517-22
CODEN: ANCHAM; ISSN: 0003-2700

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Hematin can substitute for horseradish peroxidase (HRP) as the catalyst in the detn. of hydrogen peroxide using phenolic substrates such as p-hydroxyphenyl acetate or p-cresol. Although the peroxidatic activity of hematin from bovine blood is not as great as that of HRP in terms of unit iron content, the activity per unit wt. is substantially greater. Hematin is 500 times less expensive than HRP per unit peroxidatic activity. In hematin-catalyzed systems, reaction development and fluorescence measurement can both be conducted optimally in the same ammoniacal buffer. Hydroxyalkyl hydroperoxides are rapidly hydrolyzed to H₂O₂ at this pH and are also detd. On the other hand, for Me hydroperoxide, hematin exhibits only -10% of the sensitivity exhibited by HRP. Hematin is significantly more stable in soln. than HRP. The use of hematin as catalyst and p-cresol as the substrate leads to a particularly inexpensive and sensitive system, permitting a limit of detection (LOD) of 7 nM H₂O₂ in a flow-injection configuration. The system can be used for routine detn. of H₂O₂ in air, rainwater, etc.

IT **Oxidation catalysts**
(hematin as, for phenols, in detn. of hydrogen peroxide by fluorometry)

IT **15489-90-4, Hematin**
RL: **CAT (Catalyst use); USES (Uses)**
(as catalyst for detn. of hydrogen peroxide by fluorometry)

L1 ANSWER 204 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:193523 HCAPLUS

DOCUMENT NUMBER: 116:193523

TITLE: Air-oxidation of light alkanes by first-row transition

metals in macrocyclic ligand environments
AUTHOR(S): Lyons, James E.; Ellis, Paul E., Jr.; Wagner, Richard W.; Thompson, Peter B.; Gray, Harry B.; Hughes, Maureen E.; Hodge, Julia A.
CORPORATE SOURCE: Res. Dev. Dep., Sun Co., Inc., Marcus Hook, PA, 19061, USA
SOURCE: Preprints - American Chemical Society, Division of Petroleum Chemistry (1992), 37(1), 307-17
CODEN: ACPCAT; ISSN: 0569-3799
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A symposium paper on phthalocyanine and porphyrin metal complex catalysts for alkane oxidn.
IT **Oxidation catalysts**
(metal phthalocyanines and metalloporphyrins, for alkanes)
IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(metal complexes, catalysts, for oxidn. of alkanes)

L1 ANSWER 205 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:174525 HCAPLUS
DOCUMENT NUMBER: 116:174525
TITLE: Efficient epoxidation of cholesterol and cholesteryl acetate by dioxygen in the presence of isobutyraldehyde. Metalloporphyrin-enhanced .beta.-diastereofacial selectivity of epoxidation
AUTHOR(S): Ramasseul, Rene; Tavares, Manuella; Marchon, Jean Claude
CORPORATE SOURCE: Dep. Rech. Fondam. Matiere Condens., Cent. Etud. Nucl., Grenoble, 38041, Fr.
SOURCE: Journal of Chemical Research, Synopses (1992), (3), 104-5
CODEN: JRPSDC; ISSN: 0308-2342
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 116:174525
AB Cholesterol and cholesteryl acetate are efficiently epoxidized by air and isobutyraldehyde; the .beta.-stereoselectivity of cholesteryl acetate epoxidn. is enhanced to more than 80% in the presence of (5,10,15,20-tetraphenylporphyrinato)nickel(II).
IT **Epoxidation catalysts**
(metalloporphyrins, for cholesterol and derivs., enhanced diastereofacial selectivity in)
IT 14172-92-0 **16456-81-8** 32195-55-4 85939-49-7
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for enhanced diastereofacial selectivity in epoxidn. of cholesterol and derivs.)

L1 ANSWER 206 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:128305 HCAPLUS
DOCUMENT NUMBER: 116:128305
TITLE: Solvent effect in the oxygenation of cis-stilbene catalyzed by non-porphyrin and porphyrin iron complexes
AUTHOR(S): Kobayashi, Shigeki; Tobinaga, Seisho
CORPORATE SOURCE: Showa Coll. Pharm. Sci., Machida, 194, Japan
SOURCE: Chemical & Pharmaceutical Bulletin (1991), 39(11),

3025-9
CODEN: CPBTAL; ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A solvent effect in the oxygenation reactions of cis-stilbene in the mixed solvents, MeCN-C₆H₆, MeCN-CCl₄, and MeCN-CH₂Cl, catalyzed by a non-porphyrin iron(II) complex Fe(MeCN)₆.cntdot.(ClO₄)₂ and tetraphenylporphinatoiron(III) chloride, resulted in significant changes of the product ratio.
IT **Oxidation catalysts**
(non-porphyrin and porphyrin iron complexes, for stilbene, solvent effect in relation to)
IT **16456-81-8**
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for oxidn. of stilbene with iodosylbenzene, solvent effect in)

L1 ANSWER 207 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:127970 HCAPLUS
DOCUMENT NUMBER: 116:127970
TITLE: Metalloporphyrin-catalyzed hydroxylation of cyclohexane with molecular oxygen
AUTHOR(S): Ji, Liangnian; Liu, Min; Hsieh, An Kong; Hor, T. S. Andy
CORPORATE SOURCE: Biotechnol. Res. Cent., Zhongshan Univ., Canton, Peop. Rep. China
SOURCE: Journal of Molecular Catalysis (1991), 70(2), 247-57
CODEN: JMCADS; ISSN: 0304-5102
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The selective oxidn. of cyclohexane to cyclohexanol and cyclohexanone was realized in the model system of cytochromes P 450 consisting of chlorotetraphenylporphyrinato-Mn(III), -Fe(III) or -Co(II) complexes, mol. oxygen, and ascorbic acid as coreductant. The catalytic efficiency was sensitive to the peripheral Ph substitution pattern of the porphyrinato ring in the complexes. The effects of the metal center, axial ligand, [substrate]/[catalyst] ratio, and pH of the mixt. were examd. and discussed with ref. to the oxidn. mechanism.
IT Hydroxylation catalysts
Oxidation catalysts
(metalloporphyrins, for cyclohexane)
IT **16456-81-8** 36965-70-5 36995-20-7 62613-31-4 64413-46-3
81245-21-8 90837-94-8 102032-95-1 122120-96-1 133629-42-2
133629-44-4 133629-45-5 133629-46-6 133629-47-7 139354-11-3
139354-12-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for oxidn. of cyclohexane with mol. oxygen, mechanism with)

L1 ANSWER 208 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:114317 HCAPLUS
DOCUMENT NUMBER: 116:114317
TITLE: Mechanism of catalytic oxidation of sulfur dioxide by oxygen in the presence of transition metal (cobalt(II) and manganese(III)) porphyrins
AUTHOR(S): Volod'ko, V. V.; Revina, A. A.
CORPORATE SOURCE: Inst. Elektrokhim. im. Frumkina, Moscow, USSR
SOURCE: Kinetika i Kataliz (1991), 32(6), 1362-70

CODEN: KNKTA4; ISSN: 0453-8811

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Pulse radiolysis and spectroelectrochem. methods were used to detect the formation of pre-redn. complexes of O with metalloporphyrins. Electron transfer processes in these complexes give rise to oxo, superoxo, or peroxo adducts. The reaction capacities of these complexes toward SO₂ (e.g., in waste gases) were studied. The SO₂ is oxidized by 2 parallel mechanisms involving either interaction with peroxo complexes or a chain transfer process. The existence of catalytic processes in these systems was established. The function of the metalloporphyrin catalyst is to induce redn. of O₂ to O₂²⁻ and also to generate active forms of the substrate (SO₂) which are capable of initiating autocatalytic processes.

IT **Oxidation catalysts**

(transition metal porphyrin complexes, for sulfur dioxide)

IT **Porphyrins**RL: **CAT (Catalyst use)**; USES (Uses)

(metal complexes, oxidn. catalysts, for sulfur dioxide)

L1 ANSWER 209 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:83060 HCAPLUS

DOCUMENT NUMBER: 116:83060

TITLE: Biomimetic activation of the carbon-hydrogen bond. 2. Oxygenation of hydrocarbons with O₂ catalyzed by porphyrin metal complexes in the presence of ferrocene as reducing agent

AUTHOR(S): Shul'pin, G. B.; Druzhinina, A. N.

CORPORATE SOURCE: Inst. Khim. Fiz. im. Semenova, Moscow, USSR

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1991), (12), 2739-44

CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Oxidn. of cyclohexane in the presence of metalloporphyrins, ferrocene, and O₂ afforded cyclohexanol and cyclohexanone in varying degrees after an induction time; use of non-metal-contg. tetraphenylporphyrin resulted in a prolonged induction time followed by rapid oxidn.; use of benzylferrocene resulted in selectivity for cyclohexanol in higher overall product yield, as well as diminished induction period. PhEt afforded 1-phenylethanol and acetophenone; styrene afforded PhCHO, and metal effects on the rate of metalloporphyrin-catalyzed prodn. of PhCHO were studied. The parameter .phi. representing relative reactivity of C-H bonds in PhEt vs. cyclohexane was a sensitive function of reducing agent for a given catalyst and nearly coincided with .phi. that characterized hydroxylation reactions with hydroxyl radical.

IT **Oxidation catalysts**

(porphyrin and metalloporphyrins, for hydrocarbons with oxygen in presence of ferrocene-derived reducing agents, biomimetic)

IT **Porphyrins**RL: **CAT (Catalyst use)**; USES (Uses)

(metal complexes, catalysts, biomimetic, for oxidn.

of hydrocarbons with oxygen in presence of ferrocene-derived reducing agents)

IT 917-23-7 14172-90-8 16456-81-8 26637-12-7

32195-55-4 33393-26-9

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for hydrocarbon oxidn. with oxygen in presence of
ferrocene-derived reducing agents, biomimetic)

L1 ANSWER 210 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:60020 HCAPLUS

DOCUMENT NUMBER: 116:60020

TITLE: Gas-phase oxidation of propylene by hydrogen peroxide

AUTHOR(S): Nagiev, T. M.; Nagieva, Z. M.; Mustafaeva, Ch. A.

CORPORATE SOURCE: Inst. Teor. Probl. Khim. Tekhnol., Baku, USSR

SOURCE: Neftekhimiya (1991), 31(5), 670-6

CODEN: NEFTAH; ISSN: 0028-2421

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Gas-phase thermal transformation of propylene (I) in the presence of H₂O₂ in a tubular reactor over a contact catalyst was accompanied by formation of propylene oxide, acrolein, allene, and methylacetylene in amts. depending on the reaction temp., contact time, and H₂O₂ concn. A model of the mechanism of chem. transformation of I was proposed and used to develop a kinetic model. Reaction rates of the reactions involved were calcd. The main active center in the transformation of I was the HO₂.bul. radical. The proper choice of a catalyst made it possible to decrease the reaction temp. and the H₂O₂ consumption. Silica-supported hematin catalyst exhibited high catalytic effectiveness.

IT **Dehydrogenation catalysts**

Epoxidation catalysts

(gas-phase, for propylene in presence of hydrogen peroxide)

IT **Oxidation catalysts**

(gas-phase, for propylene in presence of hydrogen peroxide)

IT **15489-90-4, Hematin**

RL: **CAT (Catalyst use); USES (Uses)**

(catalysts, silica-supported, for dehydrogenation and epoxidn. and oxidn. of propylene in presence of hydrogen peroxide)

L1 ANSWER 211 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:20704 HCAPLUS

DOCUMENT NUMBER: 116:20704

TITLE: Oxidation of alkanes by dioxygen catalyzed by photoactivated iron porphyrins

AUTHOR(S): Maldotti, A.; Bartocci, C.; Amadelli, R.; Polo, E.; Battioni, P.; Mansuy, D.

CORPORATE SOURCE: Dip. Chim., Univ. Ferrara, Ferrara, 44100, Italy

SOURCE: Journal of the Chemical Society, Chemical

Communications (1991), (20), 1487-9

CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cycloalkanes were oxidized by O₂ itself under mild conditions (22.degree.; 200 Torr of O₂) in the presence of catalytic amts. of a polyhalogenated porphyrin-iron(III)-hydroxo complex irradiated with light of wavelength between 350 and 450 nm; these oxidns. occurred without consumption of a reducing agent, selectively transformed cyclohexane into cyclohexanone under appropriate conditions (about 0.2 turnover per min), and did not involve FeV:O active species but, more probably, iron-alkylperoxo intermediates.

IT **Oxidation catalysts**

(photochem., iron porphyrin, for cycloalkanes with dioxygen)

IT **16456-81-8** 77439-20-4 91042-27-2 98715-91-4 138033-56-4

RL: **CAT (Catalyst use); USES (Uses)**
(catalysts, for photochem. oxidn. of cycloalkanes with dioxygen)

L1 ANSWER 212 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:20523 HCAPLUS
DOCUMENT NUMBER: 116:20523
TITLE: Active iron oxo centers for the selective catalytic
oxidation of alkanes
AUTHOR(S): Lyons, James E.; Ellis, Paul E., Jr.; Durante, Vincent
A.
CORPORATE SOURCE: Res. Dev. Div., Sun Refin. and Mark. Co., Marcus Hook,
PA, 19061, USA
SOURCE: Studies in Surface Science and Catalysis (1991),
67(Struct.-Act. Sel. Relat. Heterog. Catal.), 99-116
CODEN: SSCTDM; ISSN: 0167-2991
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Much work has been done in an effort to understand the nature of iron oxo
complexes and their roles in the selective catalytic oxidn. of alkanes.
Iron oxo (ferryl) species (Fe:O) have been proposed to be the active
intermediates responsible for both the enzymic and biomimetic oxidns. of
alkanes to alcs., while it is generally accepted that iron(III) .mu.-oxo
species [Fe(III)-O-Fe(III)] are not catalytically active. A no. of iron
complexes were synthesized having .mu.-oxo bridges in several mol.
environments including porphyrinato, polyoxometalate, and silicometalate
structures, and they were examd. for catalytic activity in alkane oxidn.
in both liq. and vapor phase. The activity and selectivity of these
catalysts depend upon the mol. environment of the .mu.-oxo species used as
the catalyst precursor. In some instances in situ conversion of .mu.-oxo
to ferryl oxo species may be the key to catalysts capable of direct
hydroxylation of alkanes with air or oxygen.

IT **Oxidation catalysts**

(iron oxo center based, for alkanes to alcs., kinetics and mechanism
with)

IT 1343-93-7 12582-61-5 **16456-81-8** 35268-75-8 36965-71-6
51455-98-2 70215-51-9 81245-20-7 81278-77-5 91042-27-2
98715-91-4 121162-99-0 127672-49-5 127672-50-8 127672-51-9
127672-52-0 127777-36-0 129212-06-2 129212-07-3 129212-08-4
129238-62-6 131129-97-0 131917-66-3 134788-61-7 137964-40-0

RL: **CAT (Catalyst use); USES (Uses)**
(catalysts, for oxidn. of alkanes to alcs., kinetics and mechanism
with)

L1 ANSWER 213 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:679238 HCAPLUS
DOCUMENT NUMBER: 115:279238
TITLE: Metalloporphyrin-catalyzed cooxidation of olefin in
the singlet oxygenation of sulfide
AUTHOR(S): Akasaka, Takeshi; Haranaka, Masayuki; Ando, Wataru
CORPORATE SOURCE: Dep. Chem., Univ. Tsukuba, Tsukuba, 305, Japan
SOURCE: Journal of the American Chemical Society (1991),
113(26), 9898-900
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The reaction of singlet oxygen with di-Et sulfide in the presence of
iron(III) porphyrin caused cooxidn. of olefins to the corresponding

epoxides in substantial yields. The active oxidizing species is probably a high valency iron oxo species [FeIV:O(porph+)] generated by an oxygen transfer from a persulfoxide intermediate to iron(III) porphyrin.

IT **Oxidation catalysts**

(metalloporphyrins, for olefins in singlet oxygenation of sulfide)

IT **16456-81-8** 36965-71-6 36995-20-7

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for cooxidn. of olefins, in singlet oxygenation of sulfide)

L1 ANSWER 214 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:679200 HCAPLUS

DOCUMENT NUMBER: 115:279200

TITLE: Cobalt-Schiff base complex catalyzed epoxidation of olefins with sodium hypochlorite

AUTHOR(S): Nishinaga, Akira; Maruyama, Kazushige; Kakutani, Mitsuo; Mashino, Takahiro; Umeda, Takasi

CORPORATE SOURCE: Dep. Appl. Chem., Osaka Inst. Technol., Osaka, 535, Japan

SOURCE: Studies in Surface Science and Catalysis (1991), 66(Dioxygen Act. Homogeneous Catal. Oxid.), 675-80
CODEN: SSCTDM; ISSN: 0167-2991

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 115:279200

AB A symposium. Cobalt-Schiff base complexes catalyzed the oxidn. of olefins with NaOCl to give mainly epoxides together with vic-dichloro- and .alpha.-chlorocarbonyl compds. The reaction rate depended on the nature of the cobalt catalyst as well as the structure of the olefin substrate. The proposed mechanism involves rate-detg. homolytic cleavage of the Co-O bond in CoIII(L)(OCl), a hypochloritocobalt complex intermediate, during the interaction with the substrate.

IT **Epoxidation catalysts**

(cobalt Schiff base complexes, for alkenes by sodium hypochlorite, kinetics and mechanism with)

IT **14167-18-1 14172-90-8** 21738-62-5 35599-60-1 39836-45-8
125795-67-7

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for epoxidn. of alkenes by sodium hypochlorite, kinetics and mechanism with)

L1 ANSWER 215 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:655912 HCAPLUS

DOCUMENT NUMBER: 115:255912

TITLE: Olefin oxidation catalyzed by electron deficient metalloporphyrin

AUTHOR(S): Ogoshi, Hisanobu; Suzuki, Yasuhiko; Kuroda, Yasuhisa

CORPORATE SOURCE: Dep. Synth. Chem., Kyoto Univ., Kyoto, 606, Japan

SOURCE: Chemistry Letters (1991), (9), 1547-50

CODEN: CMLTAG; ISSN: 0366-7022

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 115:255912

AB Olefin oxidns. catalyzed by Fe or Mn complexes of 2,4,6,8-tetrakis(trifluoromethyl)-1,3,5,7-tetraphenylporphyrin (I) using PhIO as oxidant were investigated. Comparison of I with the usual octaethylporphyrin-PhIO systems showed that the electronic effect in the porphyrin ring does not seriously affect the selectivity of norbornene

oxidns.

- IT **Epoxidation catalysts**
(metalloporphyrins, for olefins)
- IT **Epoxidation catalysts**
(stereoselective, metalloporphyrins, for norbornene)
- IT **16456-81-8** 28755-93-3 103134-23-2 137220-72-5
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for epoxidn. of olefins)

L1 ANSWER 216 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:655433 HCAPLUS
DOCUMENT NUMBER: 115:255433
TITLE: Catalysis by metal porphyrins of the oxidation of unsaturated hydrocarbons in the presence of inverse micelles
AUTHOR(S): Borovkova, S. Yu.; Solov'eva, A. B.; Genkin, M. V.; Davydov, R. M.
CORPORATE SOURCE: Inst. Khim. Fiz. im. Semenova, Moscow, USSR
SOURCE: Zhurnal Fizicheskoi Khimii (1991), 65(8), 2279-83
CODEN: ZFKHA9; ISSN: 0044-4537
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Inverse micelles [of CTAB and Na bis(2-ethylhexyl)sulfosuccinate] in org. solvent mixts. increased the rate of oxidn. of unsatd. hydrocarbons (cholesterol, anthracene) catalyzed by the metalloporphyrin (e.g., tetraphenylporphyrinatomagnesium chloride)-NaBH₄-O₂ system in a narrow range of concn.; product distributions varied little, if at all. The concn. range for surfactant acceleration of the oxidn. rate significantly exceeded the crit. micelle concn. (cmc) for each surfactant studied; moreover, at fixed surfactant concn. > cmc, the rate was extremal in metalloporphyrin concn. These observations were interpreted in terms of reagent partition between the org. and micellar phases, as well as isolation of the active system (consisting of metalloporphyrin, oxygen, and substrate) from cyclic hydroperoxides (which destroy the metalloporphyrin).

- IT **Oxidation catalysts**
(inverse micelles-metalloporphyrins, for unsatd. hydrocarbons)

- IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(metal complexes, catalysts, solubilized by inverse micelles, for oxidn. of unsatd. hydrocarbons)

- IT **14172-90-8 16456-81-8** 32195-55-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, in presence of inverse micelles, for oxidn. of unsatd. hydrocarbons)

L1 ANSWER 217 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:655420 HCAPLUS
DOCUMENT NUMBER: 115:255420
TITLE: Metalloporphyrin-catalyzed epoxidation of propylene
AUTHOR(S): Iwanejko, R.; Leduc, P.; Mlodnicka, T.; Poltowicz, J.
CORPORATE SOURCE: Inst. Catal. Surf. Chem., Pol. Acad. Sci., Krakow, 30-239, Pol.
SOURCE: Studies in Surface Science and Catalysis (1991), 66(Dioxygen Act. Homogeneous Catal. Oxid.), 113-20
CODEN: SSCTDM; ISSN: 0167-2991
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Sterically hindered Mn(III) and Fe(III) complexes of tetrakis(2,6-dichlorophenylporphyrin) (TDCPP) and tetrakis(2,4,6-trimethylphenylporphyrin) (TMP) have been applied as catalysts for epoxidn. of propylene by mol. oxygen in the presence of propionaldehyde as reducing agent as well as with lithium hypochlorite as oxygen source. The differences in the catalytic behavior of the investigated porphyrins when compared with simple metalloporphyrins are demonstrated and discussed.

IT **Epoxidation catalysts**

(metalloporphyrins, for propylene in presence of propionaldehyde)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(~~metal complexes~~, catalysts, for epoxidn. of propylene)

L1 ANSWER 218 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:655400 HCAPLUS

DOCUMENT NUMBER: 115:255400

TITLE: Highly oxidation resistant inorganic-porphyrin analog polyoxometalate oxidation catalysts. 2. Catalysis of olefin epoxidation and aliphatic and aromatic hydroxylations starting from .alpha.2-P2W17O61(Mn+.cntdot.Br)(n-11) (Mn+ = Mn3+, Fe3+, Co2+, Ni2+, Cu2+), including quantitative comparisons to metalloporphyrin catalysts

AUTHOR(S): Mansuy, Daniel; Bartoli, Jean Francois; Battioni, Pierrette; Lyon, David K.; Finke, Richard G.

CORPORATE SOURCE: Lab. Chim. Biochim. Pharmacol. Toxicol., Univ. Rene Descartes, Paris, 75270, Fr.

SOURCE: Journal of the American Chemical Society (1991), 113(19), 7222-6

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 115:255400

AB Several well-characterized transition-metal-substituted polyoxotungstate complexes, .alpha.2-[(n-C4H9)4N](11-n)P2W17O61(Mn+.cntdot.Br)(P2W17M) with M = Mn(III), Fe(III), or Co(II), catalyzed the epoxidn. of cyclooctene and cyclohexene, with P2W17Mn performing much better than P2W17Fe and P2W17Co; the complexes P2W17Cu, P2W17Ni, and P2W18 were almost inactive. P2W17Mn also catalyzed the oxidn. of cyclohexane, adamantane, and heptane, with the formation of the corresponding alcs. and ketones (resp. yields around 38, 40, and 5%), as well as the hydroxylation of naphthalene with the formation of 1- and 2-naphthol (43 and 3%). cis-Stilbene was epoxidized in a nonstereoselective manner. Many of the characteristics of P2W17Mn-catalyzed oxidns. particularly the regioselectivity of limonene epoxidn. and of adamantane and heptane oxidn., are similar to those of the oxidns. of the same substrates catalyzed by the hindered Mn-porphyrin Mn(TDCPP)Cl. This suggests a high-valent Mn-oxo intermediate with a difficult substrate access, as the active oxygen species involved in P2W17Mn-catalyzed monooxygenation reactions by PhIO. However, in cyclooctene epoxidns. using large excess of PhIO relative to the Mn catalyst, the rates and yields were higher with Mn(TPP)Cl and Mn(TDCPP)Cl than with P2W17Mn.

IT **Oxidation catalysts**

(manganese-substituted heteropolytungstate complexes, for alkanes)

IT **Epoxidation catalysts**

- (manganese-substituted heteropolytungstate complexes, for cycloalkenes)
- IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, catalysts, for epoxidn. of cyclohexenes and oxidn. of alkanes)
- L1 ANSWER 219 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:607548 HCAPLUS
DOCUMENT NUMBER: 115:207548
TITLE: Alkane oxidation by polynuclear non-heme iron complexes-an imidazole effect
AUTHOR(S): Fontecave, Marc; Roy, Beatrice; Lambeaux, Claude
CORPORATE SOURCE: Univ. Joseph Fourier, Grenoble, 38041, Fr.
SOURCE: Journal of the Chemical Society, Chemical Communications (1991), (14), 939-40
CODEN: JCCCAT; ISSN: 0022-4936
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 115:207548
- AB Binuclear and trinuclear non-heme iron complexes efficiently transfer oxidizing equiv. from Me3COOH to cyclohexane. Imidazole in excess greatly increases the yield of the reaction and the ketone-to-alc. ratio.
- IT **Oxidation catalysts**
(iron complexes in presence of imidazole, for cyclohexane)
- IT 7705-08-0, Iron trichloride, uses and miscellaneous **16456-81-8**
52588-39-3 87495-23-6 92217-00-0
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for oxidn. of cyclohexane)
- L1 ANSWER 220 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:558552 HCAPLUS
DOCUMENT NUMBER: 115:158552
TITLE: The role of the axial ligand in meso-tetraarylmetalloporphyrin models of the P-450 cytochromes
AUTHOR(S): Gunter, Maxwell J.; Turner, Peter
CORPORATE SOURCE: Chem. Dep., Univ. New England, Armidale, 2350, Australia
SOURCE: Journal of Molecular Catalysis (1991), 66(1), 121-41
CODEN: JMCADS; ISSN: 0304-5102
DOCUMENT TYPE: Journal
LANGUAGE: English
- AB With iodosobenzene as an oxygen source, MnTPP(Cl), [MnTPP(H2O)2]ClO4, MnTPPNO3, FeTPP(Cl), [FeTPP(H2O)2]ClO4 and (FeTPP)2O were used as model P 450 catalysts for the oxidn. of cyclohexene in methylene chloride, benzene, benzonitrile and acetonitrile. The effect of added methanol and 4-methylpyridine was also investigated. A surprisingly high (80%) yield of cyclohexene oxide returned by [MnTPP(H2O)2]ClO4 in benzonitrile required a reconsideration of the accepted role of the trans axial ligand in model P 450 reactions. Performance differences between the MnTPP+ and FeTPP+ derivs. are attributed to differences in metal-porphyrin orbital mixing. It is proposed that D4h metal eg(dxz, dyz) and porphyrin eg(pi*) orbital mixing in six-coordinate manganese porphyrins prevents electron loss from the porphyrin a2u orbital. Porphyrin ligand oxidn. in pentacoordinate manganese complexes is attributed to an unsym. metal-porphyrin interaction. The metal eg(dxz, dyz) orbitals of six-coordinate iron porphyrin complexes are thought to lie below the

porphyrin eg(.pi.*) orbitals, thus preventing a protective orbital interaction. The effects of .sigma. and .pi. charge donation from the trans axial ligand of the model P 450 catalysts are differentiated. It is proposed that .sigma. donation can accelerate oxene transfer from the catalyst to the substrate, while .pi. charge donation can addnl. alter the energy of the acceptor orbital on the active catalyst that is responsible for initiating substrate oxidn.

IT **Oxidation catalysts**

(tetraarylmetalloporphyrins, for cyclohexene)

IT 12582-61-5 **16456-81-8** 32195-55-4 65893-70-1 95647-05-5
121018-78-8

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of cyclohexene, as model for P 450 cytochrome)

L1 ANSWER 221 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:558126 HCAPLUS

DOCUMENT NUMBER: 115:158126

TITLE: Oxidation catalyzed by metalloporphyrins. Asymmetric epoxidation

AUTHOR(S): Ohkatsu, Yasukazu; Wakita, Mitsuaki

CORPORATE SOURCE: Dep. Ind. Chem., Kogakuin Univ., Tokyo, 160, Japan

SOURCE: Kagaku Kogyo (1991), 42(8), 626-34

CODEN: KAKOAY; ISSN: 0451-2014

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review with 35 refs. on catalytic epoxidn. by metalloporphyrin complexes, focusing of asym. epoxidn.

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(metal complexes, catalysts, for asym. epoxidn.)

IT **Epoxidation catalysts**

(stereoselective, metalloporphyrin complexes as)

L1 ANSWER 222 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:535304 HCAPLUS

DOCUMENT NUMBER: 115:135304

TITLE: Autoxidation of thiols in the presence of water-soluble metalloporphyrins

AUTHOR(S): Wang, Xianyuan; Wang, Youzhi; Li, Guangnian

CORPORATE SOURCE: Chengdu Inst. Org. Chem., Acad. Sin., Chengdu, 610015, Peop. Rep. China

SOURCE: Huaxue Xuebao (1991), 49(5), 477-82

CODEN: HHHPA4; ISSN: 0567-7351

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB In the presence of water-sol. metalloporphyrins, the autoxidn. of Bu mercaptan was studied. When different metallotetrapyrrolyl-porphyrins (CoTPyP, MnTPyP, FeTPyP, NiTPyP, CuTPyP, ZnTPyP) were used as catalysts, only CoTPyP exhibited distinct activity. With different cobalt porphyrins as catalysts, the activity decreased in the order of CoTPyP > Co(p-SO₃Na)TPP > Co(p-OH)TPP > Co(p-NH₂)TPP > CoTPP. The relationship between the reaction rate and the thiol concn. was measured. At high concns. a satn. effect was obsd. Michaelis-Menten kinetics appear to be obeyed. The effect of some kinetic factors (the concn. of catalyst, the concn. of alkali, and the concn. of pyridine additive) on the oxidn. reaction was also investigated.

IT **Oxidation catalysts**

(aut-, metalloporphyrins, for butanethiol)
IT 71-48-7 **14172-90-8** 14244-55-4 14514-68-2 14518-23-1
31183-11-6 52242-02-1 55621-88-0 61004-83-9 61916-94-7
67201-98-3
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for autoxidn. of butanethiol)

L1 ANSWER 223 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:521089 HCAPLUS
DOCUMENT NUMBER: 115:121089
TITLE: Catalytic activity of hemin immobilized in polymeric
matrixes
AUTHOR(S): Potapov, G. P.; Alieva, M. I.; Imshenik, V. K.
CORPORATE SOURCE: Syktyvkar. Gos. Univ., Syktyvkar, USSR
SOURCE: Izvestiya Vysshikh Uchebnykh Zavedenii, Khimiya i
Khimicheskaya Tekhnologiya (1991), 34(2), 80-4
CODEN: IVUKAR; ISSN: 0579-2991
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB The catalytic activity of Fe-porphyrin covalently bonded to polyacrylamide
gel during the oxidn. of cysteine or Na2S by O2 was studied. The activity
of the complex exceeds the catalytic activities of Fe-porphyrin complexes
coordinatively bonded to polymers contg. different functional groups. The
polymer gel-immobilized Fe-porphyrin is not washed out into the soln. and
can be reused many times.
IT **Oxidation catalysts**
(iron-porphyrin, immobilized in polyacrylamide gel)
IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(iron complexes, catalyst, immobilized in
polyacrylamide gels)
IT **16009-13-5, Hemin**
RL: **CAT (Catalyst use)**; USES (Uses)
(catalytic activity of, immobilized in polyacrylamide gel)

L1 ANSWER 224 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:448615 HCAPLUS
DOCUMENT NUMBER: 115:48615
TITLE: Shape selective oxidation as a mechanistic probe
AUTHOR(S): Suslick, Kenneth S.; Cook, Bruce R.
CORPORATE SOURCE: Sch. Chem. Sci., Univ. Illinois, Urbana, IL, 61801,
USA
SOURCE: Inclusion Phenom. Mol. Recognit., [Proc. Int. Symp.],
5th (1990), Meeting Date 1988, 209-15. Editor(s):
Atwood, Jerry L. Plenum: New York, N. Y.
CODEN: 57DUAJ
DOCUMENT TYPE: Conference
LANGUAGE: English
AB The manganese and iron complexes of the bis-pocket porphyrin
(5,10,15,20-tetrakis(2',4',6'-triphenylphenyl)porphyrin, H2TTPP) are
selective catalysts for the hydroxylation of alkanes and the epoxidn. of
nonconjugated dienes with a wide variety of oxidants. The selectivities
are independent of the choice of oxidant, demonstrating that the mechanism
of epoxidn. is very similar for all oxidant systems studied. The
selectivities for terminal hydroxylation of n-alkanes are very similar to
those for terminal epoxidn. of 1,4-dienes and are dominated by the steric
demands of the metalloporphyrin catalyst. There is, however, a dramatic

diminution in selectivity for iron vs. manganese. This means that both metals cannot be generating a common metalloxetane intermediate. The selectivities obsd. for MnTTPPP(OAc) for both 4-vinyl-1-cyclohexene and limonene are very high and approach those of limonene-induced cytochrome P 450.

IT **Epoxidation catalysts**

(porphyrin manganese and iron complexes, for nonconjugated dienes)

IT **Porphyrins**

RL: **CAT (Catalyst use);** USES (Uses)

(metal complexes, catalysts, for hydroxylation of alkanes and epoxidn. of nonconjugated dienes)

L1 ANSWER 225 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:448593 HCAPLUS

DOCUMENT NUMBER: 115:48593

TITLE: Selective low temperature hydroxylation of isobutane by molecular oxygen catalyzed by an iron perhaloporphyrin complex

AUTHOR(S): Lyons, James E.; Ellis, Paul E., Jr.

CORPORATE SOURCE: Res. Dev. Div., Sun Refin. and Mark. Co., Marcus Hook, PA, 19061, USA

SOURCE: Catalysis Letters (1991), 8(1), 45-51
CODEN: CALEER; ISSN: 1011-372X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Iron tetrakis(pentafluorophenyl).beta.-octabromoporphyrinato complexes were synthesized for the first time and shown to have unprecedented catalytic activity for the reaction of mol. oxygen with isobutane to give Me3COH. This is the first report of the use of a perhaloporphyrin complex for mild, selective air-oxidn. of an alkane and extends the trend of increased activity with halogen substitution established previously. Replacing the eight .beta.-(pyrrolic) hydrogens in Fe(TPPF20) complexes with bromines gives catalysts having twice the room temp. air-oxidn. activity of the Fe(TPPF20) complexes. Room temp. action of isobutane with oxygen catalyzed by Fe(TPPF20.beta.-Br8)Cl produces 190 mol product per mol catalyst per h with over 90% selectivity to the alc. The catalyst activity is unchanged after 74 h.

IT Hydroxylation catalysts

Oxidation catalysts

(perhaloporphyrin iron complexes, for isobutane with mol. oxygen)

IT **16456-81-8** 91042-27-2 127672-49-5 127672-50-8

RL: **CAT (Catalyst use);** USES (Uses)

(catalyst, for oxidn. of isobutane with mol. oxygen, effect of no. of ring halogens in)

L1 ANSWER 226 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:246585 HCAPLUS

DOCUMENT NUMBER: 114:246585

TITLE: Porphinatoiron-catalyzed oxygenation of styrene in aqueous solution

AUTHOR(S): Kano, Koji; Takagi, Hiroyuki; Takeuchi, Masayuki; Hashimoto, Shizunobu; Yoshida, Zenichi

CORPORATE SOURCE: Fac. Eng., Doshisha Univ., Kyoto, 602, Japan

SOURCE: Chemistry Letters (1991), (3), 519-22

CODEN: CMLTAG; ISSN: 0366-7022

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A quant. oxygenation of styrene to 1-phenylethanol is realized in a reaction catalyzed by an Fe complex of 5,10,15,20-tetrakis(1-methyl-4-pyridinio)porphine tetrachloride (FeTMPyP) in water contg. NaBH₄. A plausible mechanism involving a styrene carbanion stabilized by Fe(III)TMPyP as an intermediate is presented.

IT **Oxidation catalysts**

(iron porphyrin complex, for styrene)

IT 68-19-9, Vitamin B12 14167-18-1 15708-41-5 **16009-13-5**, Hemin

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxygenation of styrene)

L1 ANSWER 227 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:228526 HCAPLUS

DOCUMENT NUMBER: 114:228526

TITLE: Preparation of secondary-butyltoluene hydroperoxide

INVENTOR(S): Ono, Hiroyasu; Yorozu, Kiyotaka

PATENT ASSIGNEE(S): Mitsui Petrochemical Industries, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03011058	A2	19910118	JP 1989-146109	19890608
PRIORITY APPLN. INFO.:			JP 1989-146109	19890608

OTHER SOURCE(S): CASREACT 114:228526; MARPAT 114:228526

AB The title compd. is prepd. in high selectivity to tertiary hydroperoxide (I) by treatment of EtCHMeC₆H₄Me (II) with O-contg. gas in the presence of .gtoreq.1 complex of alk. earth metal or transition metal with tetraphenylporphyrins. A mixt. of II, an aq. Na₂CO₃ soln., and porphyrin-Mg²⁺ complex III was heated under bubbling with air to 120.degree. and I was added to initiate the reaction, concn. of I in the reaction product after 3 h was 12.0%, vs. 1.0% for a control without addn. of III.

IT **Peroxidation catalysts**

(hydro-, tetraphenylporphyrin alk. earth or transition metal complexes, for sec-butyltoluene, tertiary hydroperoxide from)

IT 14172-91-9 14172-92-0 14640-21-2 14705-63-6 **16456-81-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for oxidn. of sec-butyltoluene, tertiary hydroperoxide from)

L1 ANSWER 228 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:188007 HCAPLUS

DOCUMENT NUMBER: 114:188007

TITLE: Production of detergent range alcohols and ketones from alkanes using porphyrin catalysts

INVENTOR(S): Sanderson, John R.; Marquis, Edward T.; Payton, Howard F.

PATENT ASSIGNEE(S): Texaco Chemical Co., USA

SOURCE: U.S., 11 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4978799	A	19901218	US 1989-428812	19891030
EP 426290	A2	19910508	EP 1990-310155	19900917
EP 426290	A3	19910925		
R: DE, FR, GB, IT				
JP 03169831	A2	19910723	JP 1990-290985	19901030

PRIORITY APPLN. INFO.:
 US 1989-428701 19891030
 US 1989-428703 19891030
 US 1989-428812 19891030

AB The reaction of C10-18 alkanes with a hydroperoxide, esp. tert-BuOOH or cumene hydroperoxide (I), in the presence of a transition metal (esp. Fe, Mn, or Co) porphyrin catalyst gives alcs. and ketones with minimal formation of byproducts. A mixt. of dodecane 50.0, chloroferric phthalocyanine 0.10, and imidazole 0.07 g was treated slowly at 30.degree. with 80% I to give 5.02% dodecanones and 1.42% dodecanols.

IT **Oxidation catalysts**
 (for alkanes, to alcs. and ketones)

IT 132-16-1, Ferrous phthalocyanine 142-71-2, Cupric acetate 147-14-8, Cupric phthalocyanine 288-32-4, Imidazole, uses and miscellaneous 536-80-1, Iodosylbenzene 1643-19-2, Tetrabutylammonium bromide 4328-13-6, Tetrahexylammonium bromide 7601-89-0, Sodium perchlorate 12030-88-5, Potassium superoxide 12676-27-6 13395-16-9, Cupric acetylacetonate 14172-90-8 14285-56-4, Chloroferric phthalocyanine 16456-81-8 58356-65-3 60385-96-8
 RL: **CAT (Catalyst use)**; USES (Uses)
 (catalysts, for oxidn. of alkanes to alcs. and ketones)

L1 ANSWER 229 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1991:163341 HCAPLUS
 DOCUMENT NUMBER: 114:163341
 TITLE: Nature of the epoxidizing species generated by reaction of alkyl hydroperoxides with iron(III) porphyrins. Oxidations of cis-stilbene and (Z)-1,2-bis(trans-2, trans-3-diphenylcyclopropyl)ethene by tert-BuOOH in the presence of [meso-tetrakis(2,4,6-trimethylphenyl)porphinato]-, [meso-tetrakis(2,6-dichlorophenyl)porphinato]-, and [meso-tetrakis(2,6-dibromophenyl)porphinato]iron(III) chloride
 AUTHOR(S): He, Gong Xin; Bruce, Thomas C.
 CORPORATE SOURCE: Dep. Chem., Univ. California, Santa Barbara, CA, 93106, USA
 SOURCE: Journal of the American Chemical Society (1991), 113(7), 2747-53
 CODEN: JACSAT; ISSN: 0002-7863
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Oxidn. of cis-stilbene by Me3COOH with Fe porphyrin catalysts gave trans-stilbene oxide as a major product along with Ph2CHCHO, PhCH(OOCMe3)CH(OCMe3)Ph, and a trace of deoxybenzoin. The products were derived from initial combination of Me3COO.bul. (I) with cis-stilbene. Similar oxidn. of olefin II gave unsatd. ketone III as the major product, aldehyde IV, an unidentified product, and deoxybenzoin. III arose via initial combination of I with II, followed by cyclopropylcarbinyl-to-

homoallylcarbinyl rearrangement. The cis-epoxide of II was formed when one of the porphyrin catalysts was used, and the mechanism of its formation was discussed.

IT **Epoxidation catalysts**

Oxidation catalysts

(iron porphyrins, for olefins, mechanism with)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(iron complexes, catalysts, for oxidn. of olefins, mechanism with)

L1 ANSWER 230 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:143782 HCAPLUS

DOCUMENT NUMBER: 114:143782

TITLE: Chloroiron(III)-5,10,15,20-tetraarylporphinate/N-methylimidazole catalyzed oxidation of androst-4-ene-3,17-dione by cumene hydroperoxide

AUTHOR(S): Vijayarahaven, B.; Chauhan, S. M. S.

CORPORATE SOURCE: Dep. Chem., Univ. Delhi, Delhi, 110 007, India

SOURCE: Tetrahedron Letters (1990), 31(43), 6223-6

CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 114:143782

AB The oxidn. of androst-4-en-3,17-dione with cumene hydroperoxide, catalyzed by chloroiron(III)-5,10,15,20-tetraarylporphinate/N-methylimidazole systems, was studied under different reaction conditions. The chloroiron(III)-5,10,15,20-tetra(2,6-dichlorophenyl)porphinate/N-methylimidazole system in dichloromethane was found to be the most effective system for the aromatization of the A ring of androst-4-en-3,17-dione.

IT **Oxidation catalysts**

(iron-porphyrin-N-methylimidazole, for androstenedione)

IT **16456-81-8** 77439-21-5 91042-27-2

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, in presence of N-methylimidazole, for oxidn. of androstenedione)

L1 ANSWER 231 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:121618 HCAPLUS

DOCUMENT NUMBER: 114:121618

TITLE: Biomimetic hydroxylation of aromatic compounds: hydrogen peroxide and manganese-polyhalogenated porphyrins as a particularly good system

AUTHOR(S): Carrier, Marie Noelle; Scheer, Corinne; Gouvine, Pascal; Bartoli, Jean Francois; Battioni, Pierrette; Mansuy, Daniel

CORPORATE SOURCE: Lab. Chim. Biochim. Pharmacol. Toxicol., Univ. Rene Descartes, Paris, 75270, Fr.

SOURCE: Tetrahedron Letters (1990), 31(46), 6645-8

CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 114:121618

AB Various iron- and manganese-porphyrins were compared as catalysts for the hydroxylation of anisole by H₂O₂ or PhIO. Whereas all the iron-porphyrins tested gave low hydroxylation yields, Mn(III)-meso tetraarylporphyrins

bearing halogen substituents on their meso-aryl and pyrrole groups gave good yields (up to 70% based on the oxidant) for the para-hydroxylation of anisole, esp. with H₂O₂ as oxidant in the presence of imidazole. Under these conditions, phenanthrene was quant. oxidized into its 9,10-epoxide and naphthalene was mainly oxidized into 1-naphthol (40% yield). Hydroxylation yields appeared dependent upon the reactivity of the oxidizing system not only toward the starting arom. compd. but also toward the phenol products.

IT **Oxidation catalysts**

(iron and manganese porphyrins, of anisole, naphthalene and phenanthrene, with hydrogen peroxide)

IT **16456-81-8** 32195-55-4 36965-71-6 79968-43-7 91042-27-2
91463-17-1 107053-17-8 132584-44-2

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for hydroxylation of anisole with hydrogen peroxide)

L1 ANSWER 232 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:43291 HCAPLUS

DOCUMENT NUMBER: 114:43291

TITLE: Hemin-catalyzed oxidation of luminol and an isoluminol-cortisol conjugate

AUTHOR(S): Shibaev, V. A.; Eremin, A. N.; Metelitsa, D. I.; Matveentsev, V. D.; Fil'chenkov, N. A.

CORPORATE SOURCE: Inst. Bioorg. Khim., Minsk, USSR

SOURCE: Vestsi Akademii Navuk BSSR, Seryya Khimichnykh Navuk (1990), (4), 78-82

CODEN: VBSKAK; ISSN: 0002-3590

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Optimum conditions for hemin-catalyzed oxidn. of luminol and the N-(4-aminobutyl)isoluminol conjugate with cortisol (I) by H₂O₂ were detd. The process is accompanied by chemiluminescence whose intensity depends on pH in the range 9-12.5, the initial concn. of hemin and H₂O₂, in both substrates. At optimum conditions, the max. intensity of chemiluminescence for luminol is 38-fold higher, than that for I.

IT **Oxidation catalysts**

(hemin, for luminol and (aminobutyl)isoluminol conjugate with cortisol by hydrogen peroxide)

IT **16009-13-5**, Hemin

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for oxidn. of luminol and (aminobutyl)isoluminol conjugate with cortisol, chemiluminescence and)

L1 ANSWER 233 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:42033 HCAPLUS

DOCUMENT NUMBER: 114:42033

TITLE: Iron porphyrin catalyzed oxidation of propanal and cyclohexene by molecular oxygen

AUTHOR(S): Rodgers, Kenton R.; Arafa, Isam M.; Goff, Harold M.

CORPORATE SOURCE: Dep. Chem., Univ. Iowa, Iowa City, IA, 52242, USA

SOURCE: Journal of the Chemical Society, Chemical Communications (1990), (19), 1323-4

CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 114:42033

AB A variety of tetraphenylporphyratoiron(III) complexes are shown to

catalyze the aerobic oxidn. of propanal to propionic acid, and with cyclohexene as a cosubstrate to effect conversion to cyclohexene oxide.

IT **Oxidation catalysts**

(aut-, iron porphyrins, for propanal and cyclohexene)

IT **16456-81-8** 55428-47-2 73146-62-0

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of propanal and cyclohexene)

L1 ANSWER 234 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:534583 HCAPLUS

DOCUMENT NUMBER: 113:134583

TITLE: Selective air oxidation of alkanes catalyzed by halogenated metalloporphyrins

AUTHOR(S): Ellis, P. E., Jr.; Lyons, J. E.

CORPORATE SOURCE: Technol. Dep., Sun Refin. and Mark. Co., Marcus Hook, PA, 19061, USA

SOURCE: Preprints - American Chemical Society, Division of Petroleum Chemistry (1990), 35(2), 174-8

CODEN: ACPCAT; ISSN: 0569-3799

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Isobutane and propane were oxidized or autoxidized in the presence of halogenated porphyrinatoiron(III) complexes to give tert-BuOH and iso-PrOH + acetone, resp. Increasing the halogen content of the porphyrin ring increased the life and activity of the catalysts.

IT **Oxidation catalysts**

(aut-, selective, haloporphyrinatoiron complexes, for isobutane and propane)

IT **Oxidation catalysts**

(selective, haloporphyrinatoiron complexes, for isobutane and propane)

IT **16456-81-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for selective oxidn. of propane)

L1 ANSWER 235 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:531367 HCAPLUS

DOCUMENT NUMBER: 113:131367

TITLE: Catalytic epoxidation of cyclooctene with oxygen using electrochemically reduced metalloporphyrins

AUTHOR(S): Ojima, Fumihiko; Kobayashi, Nagao; Osa, Tetsuo

CORPORATE SOURCE: Pharm. Inst., Tohoku Univ., Sendai, 980, Japan

SOURCE: Bulletin of the Chemical Society of Japan (1990), 63(5), 1374-80

CODEN: BCSJA8; ISSN: 0009-2673

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 113:131367

AB Epoxidn. of cyclooctene with mol. oxygen was achieved using electrochem. reduced metalloporphyrins in N,N-dimethylformamide (DMF) contg. acetic anhydride as an electrophile. Turnover nos. 5-7, based on moles of cyclooctene oxide produced per mol of porphyrin, were obtained by the use of [5,10,15,20-tetrakis(pentafluorophenyl)porphinato(III) chloride and [5,10,15,20-tetra(1-naphthyl)porphinato]manganese(III) chloride. The effects of central metals and substituents on Ph groups of metalloporphyrins were also investigated. Rate consts. (κ) were estd. by way of digital simulation of cyclic voltammograms based on a simple ECE reaction mechanism. The reaction mechanism in the presence of

cobalt(II) complexes seemed to be somewhat different from that in the presence of iron(III) or manganese(III) complexes.

IT **Epoxidation catalysts**

(electrochem., metalloporphyrins, for cyclooctene by dioxygen, kinetics and mechanism of)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(~~metal complexes~~, catalysts, for electrochem.

epoxidn. of cyclooctene, kinetics and mechanism with)

IT 917-23-7 **14172-90-8** 14244-55-4 **16456-81-8**

36965-70-5 36965-71-6 55915-17-8 64365-00-0 64413-48-5

67201-98-3 86456-39-5 99651-88-4 106317-00-4 129060-65-7

RL: **CAT (Catalyst use); USES (Uses)**

(catalysts, for electrochem. epoxidn. of cyclooctene by dioxygen, kinetics and mechanism with)

L1 ANSWER 236 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:514363 HCAPLUS

DOCUMENT NUMBER: 113:114363

TITLE: Recent advances in oxygenation reactions catalyzed by metalloporphyrins

AUTHOR(S): Banfi, Stefano; Maiocchi, Alessandro; Montanari, Fernando; Quici, Silvio

CORPORATE SOURCE: Dip. Chim. Org. Ind., Univ. Milan, Milan, Italy

SOURCE: Chimica e l'Industria (Milan, Italy) (1990), 72(4), 304-16

CODEN: CINMAB; ISSN: 0009-4315

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 45 refs.

IT **Oxidation catalysts**

(metalloporphyrins)

IT **Oxidation catalysts**

(aut-, metalloporphyrins)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(~~metal complexes~~, catalysts, for autoxidns., mechanism with)

L1 ANSWER 237 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:499761 HCAPLUS

DOCUMENT NUMBER: 113:99761

TITLE: Halogen substituent effects on the catalytic activity of iron porphyrin complexes for selective air-oxidation of alkanes in the liquid phase

AUTHOR(S): Ellis, Paul E., Jr.; Lyons, James E.

CORPORATE SOURCE: Sun Refin. and Market. Co., Marcus Hook, PA, 19061, USA

SOURCE: Catalysis Letters (1989), 3(5-6), 389-97

CODEN: CALEER; ISSN: 1011-372X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Halogenation of the porphyrin ring of porphyrinatoiron(III) complexes greatly increased their catalytic activity for the selective mild reaction of alkanes with O₂. The greater the halogen content the greater was the catalytic activity of the complex. Selective reaction of isobutane with O₂ was catalyzed by tetrakis (pentafluorophenyl)porphyrinatoiron(III)

azido, hydroxo (I), or halo complexes under mild conditions of temp. and pressure and in the absence of coreductant. I at room temp. gave tert-BuOH in 95% selectivity. The catalyst activity was virtually unchanged after >140 h at room temp. and >12,000 mol alc. was produced/mol metal complex used.

IT Hydroxylation catalysts

Oxidation catalysts

(porphyrinatoiron, for alkanes, halogen substituent effects on)

IT **Oxidation catalysts**

(aut-, porphyrinatoiron, for alkanes, halogen substituent effects on)

IT 12582-61-5 **16456-81-8** 36929-15-4 36965-71-6 51455-98-2
70215-51-9 81245-20-7 81278-77-5 91042-27-2 98715-91-4
121162-99-0 127672-49-5 127672-50-8 127672-51-9 127672-52-0
127777-36-0 129114-00-7

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for selective oxidn. of isobutane and propane, halogen substituent effects on)

L1 ANSWER 238 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:477900 HCAPLUS

DOCUMENT NUMBER: 113:77900

TITLE: Preparation of diaminodiphenylmethanols

INVENTOR(S): Inada, Yuji; Ogoshi, Atsushi

PATENT ASSIGNEE(S): Iwashiro Seiyaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02088545	A2	19900328	JP 1988-239068	19880926
PRIORITY APPLN. INFO.:			JP 1988-239068	19880926

AB The title compds., useful as materials for dyes and pigments, are prepd. by oxidn. of diaminodiphenylmethanes with H₂O₂ in the presence of Fe-protoporphyrin complexes. N,N'-Tetramethyl-4,4'-diaminodiphenylmethane in aq. AcOH was treated with H₂O₂ and hemin at 4.degree. for 10 min to give 85% N,N'-tetramethyl-4,4'-diaminodiphenylmethanol.

IT **Oxidation catalysts**
(iron-protoporphyrin, for diaminodiphenylmethanes)

IT **16009-13-5**, Hemin
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for oxidn. of diaminodiphenylmethanes)

L1 ANSWER 239 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:477471 HCAPLUS

DOCUMENT NUMBER: 113:77471

TITLE: Biomimetic oxidation of alkanes under phase transfer condition

AUTHOR(S): Sorokin, A. B.; Khenkin, A. M.

CORPORATE SOURCE: Inst. Chem. Phys., Chernogolovka, 142432, USSR

SOURCE: New Journal of Chemistry (1990), 14(1), 63-7

CODEN: NJCHE5; ISSN: 0398-9836

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 113:77471

AB Cyclohexane, hexane, cyclopentane and 1,2-dimethylcyclohexane oxidn. by NaOCl has been studied at catalysis by iron(III) tetraarylporphyrins in H₂O-C₆H₆ medium. The dependence of the initial rate and the product yield of cyclohexane oxidn. on the concn. and nature of the system components has been detd. The retention of configuration of the hydrocarbon skeleton (92%) has been found for cis- and trans-1,2-dimethylcyclohexane oxidn. The high isotope effect (kH/kD = 10.9) in the C-H bond hydroxylation has been found for cyclohexane oxidn. by NaOCl-FeToFPpCl* system. The regioselectivity of hexane oxidn. has been shown to depend on the porphyrine structure. The above observations resulted in a mechanism of alkane oxidn. by an active species [PNeIV = O+ ... Cl-], involving the hydrogen atom abstraction from the alkane with synchronous elimination of a chloride anion and further recombination between the alkyl radical and iron porphyrin hydroxycomplex without free radical escaping the soln.

IT **Oxidation catalysts**

(iron tetraarylporphyrins, for alkanes)

IT 16456-81-8 60250-86-4 77439-21-5 98858-68-5 118115-08-5

RL: **CAT (Catalyst use)**; USES (Uses)

(phase-transfer catalysts, for biomimetic oxidn. of alkanes)

L1 ANSWER 240 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:413600 HCAPLUS

DOCUMENT NUMBER: 113:13600

TITLE: Functionalization of saturated hydrocarbons. Part XV. Electrochemical oxidation of saturated hydrocarbons by the Gif-Orsay system

AUTHOR(S): Balavoine, G.; Barton, D. H. R.; Boivin, J.; Gref, A.; Hallery, I.; Ozbalik, N.; Pestana, J. A.; Riviere, H.

CORPORATE SOURCE: Inst. Chim. Mol. Orsay, Univ. Paris-Sud, Orsay, 91405, Fr.

SOURCE: New Journal of Chemistry (1990), 14, 175-83

CODEN: NJCHE5; ISSN: 0398-9836

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The various components of the Gif-Orsay system for selective oxidn. of satd. hydrocarbons and their interactions with each other were examd. by cyclic voltammetry. This study permitted to establish the optimum conditions were detd. for preparative electrooxygenation of hydrocarbons and a mechanistic hypothesis was proposed where binuclear iron complexes were thought to intervene.

IT **Oxidation catalysts**

(electrochem., Gif-Orsay system, for satd. hydrocarbons)

IT 142-71-2, Copper diacetate 617-78-7, 3-Ethylpentane 3094-87-9, Iron diacetate 13520-69-9 16456-81-8

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. catalysts, for electrochem. oxidn. of satd. hydrocarbons by Gif-Orsay system)

L1 ANSWER 241 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:241080 HCAPLUS

DOCUMENT NUMBER: 112:241080

TITLE: Catalytic activity of cobalt-tetraphenylporphyrin (CoTPP) supported on titanium dioxide for the oxidation of carbon monoxide at room temperature

AUTHOR(S): Zhang, Hua; Cao, Meiqiu

CORPORATE SOURCE: Res. Cent. Eco-Environ. Sci., Chin. Acad. Sci.,

Beijing, Peop. Rep. China
SOURCE: Fenzi Cuihua (1989), 3(3), 235-41
CODEN: FECUEN; ISSN: 1001-3555
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB CoTPP was impregnated onto TiO₂ using a benzene soln. to give a concn. of 3.5 wt.% and activated by evacuating at various temps. before reaction. The max. activity of the catalyst was obtained by heat treatment at 300 for 2 h under vacuum. This treatment favors the interaction between the complex and the support, thereby causing the high activity. The catalytic reaction was carried out in a circulating reactor with partial pressures of CO and O₂ of 18 and 24 Torr, resp. Conversion of CO and yields of CO₂ were analyzed by a gas chromatograph. The catalytic activity of the same catalyst in a 2nd run was decreased to .apprx.65% of the initial activity. The evacuation of the catalyst at 300 for 2 h before reported use restored the initial activity, indicating adsorption of some catalyst poisons such as CO₂. The rate scarcely increased at >30.degree.. No reaction was found to take place over Co TPP or TiO₂ alone, or on CoTPP/Al₂O₃ and CoTPP/SiO₂ under the same conditions, indicating that chem. interaction between the complex and support is the major reason for the activity.

IT **Oxidation catalysts**

(cobalt tetraphenylporphyrin-titania, for carbon monoxide)

IT **14172-90-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts from titania and, for oxidn. of carbon monoxide)

L1 ANSWER 242 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:215947 HCAPLUS

DOCUMENT NUMBER: 112:215947

TITLE: Metal-dependent reactivity of some metalloporphyrins in oxidation with dioxygen

AUTHOR(S): Haber, Jerzy; Mlodnicka, Teresa; Poltowicz, Jan

CORPORATE SOURCE: Krakow, Pol.

SOURCE: Journal of Molecular Catalysis (1989), 54(3), 451-61
CODEN: JMCADS; ISSN: 0304-5102

DOCUMENT TYPE: Journal

LANGUAGE: English

AB p-Tetratolylporphyrins with different metal centers such as Cr³⁺, Mn³⁺, Fe³⁺, Co²⁺, Ni²⁺, Cu²⁺ and Zn²⁺ have been used as catalysts for epoxidn. of propylene in the presence of propionaldehyde and dioxygen. The induction time as well as the distribution of the main reaction products, i.e. peroxy acid, epoxide, and carbon dioxide, vary with the metalloporphyrin applied. These differences in the catalytic behavior shed light on the character of the active forms of the catalysts and on the mechanism of the investigated reaction.

IT **Oxidation catalysts**

(tetratolylporphyrin metal complexes, for propene in presence of propionaldehyde and dioxygen)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, catalysts, for epoxidn. of propene in presence of propionaldehyde and dioxygen)

L1 ANSWER 243 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:197650 HCAPLUS

DOCUMENT NUMBER: 112:197650

TITLE: Metalloporphyrin-catalyzed oxidation of saturated

hydrocarbons with sodium chlorite
AUTHOR(S): Collman, James P.; Tanaka, Hiroo; Hembre, Robert T.;
Brauman, John I.
CORPORATE SOURCE: Dep. Chem., Stanford Univ., Stanford, CA, 94305-5080,
USA
SOURCE: Journal of the American Chemical Society (1990),
112(9), 3689-90
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 112:197650

AB A remarkably efficient and active catalyst is formed when NaClO₂, a
manganese porphyrin, and an axial base such as 4-tert-butylpyridine are
used in the oxidn. of satd. hydrocarbons. The unique reactivity of the
chlorite-derived oxidant is contrasted with the active species formed by
other shunt oxidants - in particular, hypochlorite. Mn(III)-porphyrin
catalysis of chlorite disproportionation to chlorate and chloride is also
reported.

IT **Oxidation catalysts**

(metalloporphyrins, for satd. hydrocarbons with sodium chlorite)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(**manganese complexes**, catalysts, for oxidn. of
satd. hydrocarbons with sodium chlorite)

L1 ANSWER 244 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:177778 HCAPLUS

DOCUMENT NUMBER: 112:177778

TITLE: Catalytic activity of iron porphyrins in the oxidation
of cholesterol and anthracene

AUTHOR(S): Rochev, V. Ya.; Bekeshev, V. G.; Lukashova, E. A.;
Filatova, N. V.; Solov'eva, A. B.

CORPORATE SOURCE: Inst. Khim. Fiz. im. Semenova, Moscow, USSR

SOURCE: Khimicheskaya Fizika (1989), 8(7), 1000-3

CODEN: KHFID9; ISSN: 0207-401X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The relatively weak catalytic activity of FeCl tetraphenylporphinate in
the title oxidns. in the presence of NaBH₄ was attributed to its
dimerization to a catalytically inactive .mu.-oxo form. The Moessbauer
spectra of the monomer and dimer, in presence and absence of NaBH₄ and
substrate, were reported.

IT **Oxidation catalysts**

(iron porphyrins, for cholesterol and anthracene in presence of sodium
borohydride, self- and intermol. assocn. process of)

IT **16456-81-8**

RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for oxidn. of cholesterol and anthracene in presence of
sodium borohydride, Moessbauer studies of)

L1 ANSWER 245 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:157866 HCAPLUS

DOCUMENT NUMBER: 112:157866

TITLE: Process for the preparation of p-hydroxybenzaldehydes

INVENTOR(S): Schnatterer, Albert; Fiege, Helmut

PATENT ASSIGNEE(S): Bayer A.-G., Fed. Rep. Ger.

SOURCE: Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 330036	A1	19890830	EP 1989-102424	19890213
EP 330036	B1	19900926		
R: AT, BE, CH, DE, FR, GB, IT, LI, NL, SE				
DE 3805697	A1	19890907	DE 1988-3805697	19880224
AT 56937	E	19901015	AT 1989-102424	19890213
US 4929766	A	19900529	US 1989-311481	19890216
JP 01254637	A2	19891011	JP 1989-38482	19890220
JP 2788747	B2	19980820		
IL 89368	A1	19930221	IL 1989-89368	19890221
DK 8900836	A	19890825	DK 1989-836	19890223
PRIORITY APPLN. INFO.:			DE 1988-3805697	19880224
			EP 1989-102424	19890213

OTHER SOURCE(S): CASREACT 112:157866; MARPAT 112:157866

AB The title compds. (I; R = CHO; R1-R4 = H, halo, C1-10 alkyl, C3-8 cycloalkyl, C1-10 alkoxy, Ph) were prep'd. by O-oxidn. of I (R = Me) in the presence of a base, a chelate of Fe and/or Mn, and, optionally, .gtoreq.1 metal compd. cocatalyst. Thus, p-cresol (II), NaOH, MeOH, Fe tetraphenylporphine (FeTPP as FeTPPC1)(sic), CuCl2, and (NH4)2Ce(NO3)6 were stirred 7 h at 60.degree. in an O atm. to give 98.8% conversion of II with 82.0% selectivity for 4-HOC6H4CHO and 0.3% selectivity for 4-HOC6H4CH2OMe.

IT **Oxidation catalysts**
 (iron and manganese chelates, for cresols to hydroxybenzaldehydes)

IT 132-16-1 13221-12-0 **16009-13-5** 19496-18-5 25587-03-5
 36965-70-5 36995-20-7 64413-51-0 73808-82-9 78142-22-0
 120494-83-9 125755-34-2 126081-56-9

RL: **CAT (Catalyst use)**; USES (Uses)
 (catalyst, for O-oxidn. of cresols)

L1 ANSWER 246 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:632422 HCAPLUS

DOCUMENT NUMBER: 111:232422

TITLE: Concentration effects on metalloporphyrin catalyses in nonaqueous media

AUTHOR(S): Solov'eva, A. B.; Lukasheva, E. A.; Ivanova, A. I.; Vol'son, S. A.

CORPORATE SOURCE: Inst. Khim. Fiz. im. Semenova, Moscow, USSR

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1989), (6), 1242-7

CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The effective rate consts. for the air oxidn. of cholesterol (I) in the presence of manganese porphyrinates, e.g., tetraphenylporphyrinate (TPhP)MnOAc, tetra-p-aminophenylporphyrinate (TAPhP)MnOAc, and also Mn porphyrinates with substituents only in the pyrrole ring, depend on the concns. of the Mn complexes and I. The results may be explained in terms of the formation solvated assocs. (dimers) of the type: Mn porphyrinate-I, Mn porphyrinate dimer, and I-I.

IT **Oxidation catalysts**
(manganese porphyrinates for cholesterol)
IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(manganese complexes, as catalyst for oxidn. of cholesterol)

L1 ANSWER 247 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1989:631704 HCAPLUS
DOCUMENT NUMBER: 111:231704
TITLE: Reduction of aromatic nitro compounds with 2-mercaptoethanol and oxidation of thiophenol with molecular oxygen mediated by trinuclear iron acetate complexes
AUTHOR(S): Murata, Satoru; Miura, Masahiro; Nomura, Masakatsu
CORPORATE SOURCE: Fac. Eng., Osaka Univ., Suita, 565, Japan
SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1972-1999) (1989), (6), 617-21
CODEN: JCPKBH; ISSN: 0300-9580
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 111:231704
AB Arom. nitro compds. were selectively reduced by 2-mercaptoethanol in the presence of trinuclear acetate complexes [FeIII2MIIIO(OAc)6(py)3][(I; M = Fe), (II; M = Mn), (III; M = Co), and (IV; M = Ni)] to give the corresponding amines. The reaction follows pseudo-first-order kinetics. The activity order of these complexes for the redn. followed the sequence: ,II > I > IV > III. These complexes also efficiently catalyzed oxidn. of thiophenol with mol. oxygen to produce di-Ph disulfide quant. The activity order of the complexes for the oxidn. was similar to that obsd. in the redn. of nitro compds.
IT **Oxidation catalysts**
(aut-, trinuclear ferric acetate complexes, for thiophenol, mechanism with)
IT **16456-81-8**
RL: **CAT (Catalyst use); USES (Uses)**
(catalyst, for redn. of arom. nitro compds., attempted use as)

L1 ANSWER 248 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1989:631449 HCAPLUS
DOCUMENT NUMBER: 111:231449
TITLE: Hydrocarbon oxidations catalyzed by azide- or nitride-activated metal coordination complexes
INVENTOR(S): Ellis, Paul E.; Lyons, James E.; Myers, Harry K.
PATENT ASSIGNEE(S): Sun Refining and Marketing Co., USA
SOURCE: Eur. Pat. Appl., 21 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 11
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 274909	A2	19880720	EP 1987-311480	19871229
EP 274909	A3	19900207		

EP 274909	B1	19940810		
R: BE, DE, FR, GB, IT, NL				
US 4895682	A	19900123	US 1987-246	19870102
US 4895680	A	19900123	US 1987-247	19870102
CA 1302433	A1	19920602	CA 1987-553416	19871203
CA 1336188	A1	19950704	CA 1987-553420	19871203
NO 8705496	A	19880704	NO 1987-5496	19871230
NO 169710	B	19920421		
NO 169710	C	19920729		
SU 1833358	A3	19930807	SU 1987-4203962	19871231
JP 01180840	A2	19890718	JP 1988-46	19880104
JP 2517340	B2	19960724		
US 5663328	A	19970902	US 1996-672202	19960627

PRIORITY APPLN. INFO.:

US 1987-246	19870102
US 1987-247	19870102
US 1987-66666	19870626
US 1989-425089	19891023
US 1990-568116	19900816
US 1994-303106	19940907

OTHER SOURCE(S): CASREACT 111:231449

AB The title process is used in the prepn. of alcs., ketones, acids, esters, or mixts. thereof. For example, oxidn. of 7 g isobutane in C₆H₆ at 80.degree. and 75 psig O₂ for 6 h in the presence of 0.025 mmol Co(L)N₃ [L = 1,3-bis(2-pyridylimino)isoindoline] gave a turn over no. of 196 which was quite superior to Co(L)(OAc) or Co(acac)₂ with added NaN₃. Products were Me₃COH and Me₂CO.

IT Oxidation catalysts

(azide- or nitrile-activated metal complexes)

IT 14024-48-7	14284-89-0	14325-24-7	16456-81-8	21679-31-2
21679-46-9	28110-70-5	32195-55-4	33393-26-9	51455-98-2
53575-79-4	56413-47-9	58356-65-3	59114-43-1	60166-10-1
74114-36-6, Manganese nitride (Mn ₃ N)		83438-07-7		83632-54-6
84174-79-8	98395-07-4	108820-38-8	108820-40-2	118211-15-7
120457-98-9				

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for oxidn. of hydrocarbons)

L1 ANSWER 249 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:553033 HCAPLUS

DOCUMENT NUMBER: 111:153033

TITLE: Alkene epoxidations catalyzed by iron(III), manganese(III), and chromium(III) porphyrins. Effects of metal and porphyrin substituents on selectivity and regiochemistry of epoxidation

AUTHOR(S): Traylor, Teddy G.; Miksztal, Andrew R.

CORPORATE SOURCE: Dep. Chem., Univ. California, San Diego, La Jolla, CA, 92093, USA

SOURCE: Journal of the American Chemical Society (1989), 111(19), 7443-8

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 111:153033

AB The products of epoxidn. of norbornene, cyclohexene, and adamantylideneadamantane with pentafluoriodosylbenzene using as catalysts variously substituted tetraphenylporphyrin complexes of chloroiron(III), chloromanganese(III), and chlorochromium(III) have been detd. All

catalysts afforded the epoxide from adamantylideneadamantane, suggesting that the metallacycle intermediate, impossible in this case, is not required for epoxidn. The ratios of exo- to endo-epoxynorbornanes obtained from norbornene varied from about 103 for electropos. substituted Cr(III) complexes gradually through the Mn(III) and Fe(III) series to a value of about 6 for electroneg. substituted iron(III) porphyrins. Mechanisms ranging from limiting electrophilic addn. to limiting electron transfer are proposed to account for these changes. The electroneg. substituted iron porphyrins show a greater tendency toward epoxidn. rather than allylic oxidn. and show more selectivity for cis-alkenes.

IT **Epoxidation catalysts**

(metalloporphyrins, for olefins with pentafluoriodosylbenzene)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(**metal complexes**, catalysts, for epoxidn. of olefins by pentafluoriodosylbenzene)

IT **16456-81-8** 19496-18-5 19570-49-1 28110-70-5 32195-55-4
 36965-71-6 36995-20-7 52155-50-7 53470-05-6 56811-39-3
 62769-24-8 64413-43-0 77439-21-5 79968-43-7 85939-49-7
 91042-27-2 91463-17-1 94890-04-7 108150-86-3 117960-16-4
 118115-08-5 122745-47-5 122745-48-6 122745-49-7 122745-50-0
 122745-51-1

RL: **CAT (Catalyst use); USES (Uses)**

(catalysts, for epoxidn. of norbornene by pentafluoriodosylbenzene)

L1 ANSWER 250 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:553028 HCAPLUS

DOCUMENT NUMBER: 111:153028

TITLE: Reactivity-structure correlations in oxidation with metalloporphyrins

AUTHOR(S): Haber, Jerzy; Mlodnicka, Teresa; Witko, Malgorzata

CORPORATE SOURCE: Inst. Catal. Surface Chem., Pol. Acad. Sci., Cracow, Pol.

SOURCE: Journal of Molecular Catalysis (1989), 52(1), 85-97
 CODEN: JMCADS; ISSN: 0304-5102

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Metalloporphyrins of the 1st transition series were studied as catalysts in the oxidn. of propene by dioxygen in Et acetate in the presence of propionaldehyde. With MnIIITTP and FeIIITTP of low redox potential, the reaction starts with generation of an acyl radical by electron transfer to a metal orbital, followed by formation of a peroxy acid. In the case of CoIIITTP, acyl radicals are generated through abstraction of hydrogen by the ready formed CoIIITTP-O₂ complex. Co-porphyrin binds the peroxy acid in 2 ways: through the oxygen of the carbonyl group with the peroxy oxygen atoms sticking out, or through the peroxy oxygen with the double-bonded oxygen of the carbonyl group exposed. Quantum chem. calcns. revealed that only the terminal oxygen of the exposed peroxy group in the 1st type of complex acquires electrophilic properties and can add an oxygen atom to the olefinic double bond. Such a complex of MnIII-porphyrin is unstable and decomp. to form manganese oxo species which are responsible for epoxidn. MnIII-porphyrin also shows high activity in the homolytic decompn. of the peroxy acid with evolution of CO₂. In the case of Cr(III), Ni(II), Cu(II) and Zn(II) porphyrins, the redn. potential is too high to allow electron transfer from aldehyde to the metal center, rendering the 1st step of the reaction difficult.

IT **Oxidation catalysts**

- (metalloporphyrins, for propene, mechanism with)
- IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(**transition metal complexes**, catalysts,
for oxidn. of propene, mechanism with)
- L1 ANSWER 251 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1989:552886 HCAPLUS
DOCUMENT NUMBER: 111:152886
TITLE: Shape-selective oxidation of hydrocarbons
AUTHOR(S): Suslick, Kenneth S.
CORPORATE SOURCE: Sch. Chem. Sci., Univ. Illinois, Urbana, IL, 61801,
USA
SOURCE: Act. Funct. Alkanes (1989), 219-41. Editor(s): Hill,
Craig L. Wiley: New York, N. Y.
CODEN: 56PEAO
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
- AB A review with 71 refs. treating the catalytic and mechanistic aspects of
alkane hydroxylation and alkene epoxidn., with comparison to enzymic
hydroxylation.
- IT **Epoxidation catalysts**
(metalloporphyrins, for alkenes, shape-selective)
- IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(**metal complexes**, catalysts, for shape-selective
oxidn. of hydrocarbons)
- L1 ANSWER 252 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1989:533350 HCAPLUS
DOCUMENT NUMBER: 111:133350
TITLE: Oxygenation of hydrocarbons by porphyrin complexes
AUTHOR(S): Weber, Lutz; Haufe, Guenter
CORPORATE SOURCE: Sekt. Chem., Karl Marx Univ. Leipzig, Leipzig,
DDR-7010, Ger. Dem. Rep.
SOURCE: Zeitschrift fuer Chemie (1989), 29(3), 88-100
CODEN: ZECEAL; ISSN: 0044-2402
DOCUMENT TYPE: Journal; General Review
LANGUAGE: German
- AB A review with 183 refs. on the hydroxylation of satd. and unsatd.
hydrocarbons and the epoxidn. of olefins with metalloporphyrin catalysts.
- IT **Epoxidation catalysts**
(metalloporphyrins, for olefins)
- IT **Porphyrins**
RL: **CAT (Catalyst use); USES (Uses)**
(**metal complexes**, catalysts, for epoxidn. and
hydroxylation of hydrocarbons)
- L1 ANSWER 253 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1989:496451 HCAPLUS
DOCUMENT NUMBER: 111:96451
TITLE: Oxidation of aromatic amines by hydrogen peroxide with
participation of metal tetraphenylporphyrins
AUTHOR(S): Metelitsa, D. I.; Eremin, A. N.; Shibaev, V. A.;
Golovenko, N. Ya.; Galkin, B. N.; Zhilina, Z. I.
CORPORATE SOURCE: Inst. Bioorg. Khim., Minsk, USSR
SOURCE: Vestsi Akademii Navuk BSSR, Seryya Khimichnykh Navuk

(1989), (1), 58-64

CODEN: VBSKAK; ISSN: 0002-3590

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The oxidn. of arom. amines by H₂O₂ with participation of tetraphenylporphyrin (TPP) complexes with Fe³⁺, Co²⁺, Ni²⁺, Mn³⁺, Cu²⁺, Zn²⁺ and Sn⁴⁺ ions was studied in methanol at 25.degree.. The max. rates were obtained in the catalysis of o-dianisidine (o-DA) oxidn. by TPP-Fe³⁺. The catalytic activity of metal complexes decreased strongly in correspondence with the above sequence, i.e., in order of difficulty of variation of the oxidn. state of the central metal atom. The o-DA oxidn. rate with the TPP-Fe³⁺ was proportional to H₂O₂, TPP-Fe³⁺, and o-DA concns. in a wide range but tended to limiting values with increasing reagent concn. A radical mechanism is discussed.

IT **Oxidation catalysts**

(metalloporphyrins, for arom. amines with hydrogen peroxide)

IT **Porphyrins**RL: **CAT (Catalyst use)**; USES (Uses)

(metal complexes, catalysts, for oxidn. of arom. amines with hydrogen peroxide)

IT 917-23-7 **14074-80-7 14172-90-8** 14172-91-9
14172-92-0 29484-63-7 59388-92-0 67574-57-6

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of arom. amines by hydrogen peroxide)

L1 ANSWER 254 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:480285 HCAPLUS

DOCUMENT NUMBER: 111:80285

TITLE: Catalytic conversion of cyclohexylhydroperoxide to cyclohexanone and cyclohexanol

AUTHOR(S): Tolman, C. A.; Druliner, J. D.; Krusic, P. J.; Nappa, M. J.; Seidel, W. C.; Williams, I. D.; Ittel, S. D.

CORPORATE SOURCE: Cent. Res. Dev. Dep., E. I. du Pont de Nemours and Co., Wilmington, DE, 19898, USA

SOURCE: Journal of Molecular Catalysis (1988), 48(1), 129-48
CODEN: JMCADS; ISSN: 0304-5102

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The low-conversion air oxidn. of cyclohexane yields a mixt. of cyclohexylhydroperoxide (I), cyclohexanone (II), and cyclohexanol (III). The I is converted to addnl. II and III before the mixt. is concd. Using a combination of pulse calorimetry and chem. luminescence techniques, a new family of long-lived catalysts has been discovered. These catalysts, based upon the [bis(2-pyridyl-imino)isoindolinato] ligand, are very active and long-lived, allowing I to be converted in a selective, low temp. process. The structure of bis[bis((3-methyl-2-pyridyl)-imino)isoindolinato]cobalt(II) was detd. crystallog. Under reaction conditions, it is likely that the active form of the catalyst has lost one ligand.

IT **Oxidation catalysts**

(for cyclohexane to cyclohexanone and cyclohexanol)

IT 110-18-9D, cobalt and iron complexes 574-93-6D, 29H,31H-Phthalocyanine, tert-Bu derivs, metal complexes 1522-22-1D, cobalt and iron complexes 3317-67-7 7439-89-6D, Iron, complexes 7440-48-4D, Cobalt, complexes **14172-90-8** 14526-01-3 14911-23-0 17632-19-8 21178-80-3 73946-62-0 78065-39-1 79062-05-8 79062-08-1 121832-26-6 121832-27-7 121982-26-1

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for decompn. of cyclohexyl hydroperoxide)

IT 1588-79-0, Cobalt dioctoate 7439-98-7, Molybdenum, uses and miscellaneous 7440-47-3, Chromium, uses and miscellaneous 7440-48-4, Cobalt, uses and miscellaneous 7440-62-2, Vanadium, uses and miscellaneous **16456-81-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for decompn. of cyclohexylhydroperoxide)

L1 ANSWER 255 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:477562 HCAPLUS

DOCUMENT NUMBER: 111:77562

TITLE: Oxidation of 2,6-di-tert-butylphenol catalyzed by metallotetraphenylporphyrins

AUTHOR(S): Zeng, Qingping; Wang, Xianyuan; Li, Guangnian

CORPORATE SOURCE: Chengdu Inst. Org. Chem., Chin. Acad. Sci., Chengdu, Peop. Rep. China

SOURCE: Fenzi Cuihua (1988), 2(4), 243-9

CODEN: FECUEN; ISSN: 1001-3555

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

OTHER SOURCE(S): CASREACT 111:77562

AB Oxidn. of 2,6-di-tert-butylphenol by dioxygen in different catalytic systems was studied. Using CoTPP (TPP = metallotetraphenylporphyrin) with different electron-donating or electron-attracting para-substituents of Ph groups as catalysts, the activities of the catalysts were compared and the results indicated that the activities decrease in the order of CoT(p-OCH₃)PP > CoT(p-CH₃)PP > CoTPP > CoT(p-Cl)PP > CoT(p-CN)PP which is in agreement with the decreasing electron donating ability of the substituents. It was found that the rate of oxidn. reaction of 2,6-di-tert-butylphenol and the selectivity of the reaction for 2,6-di-tert-butylbenzoquinone formation obsd. in MnTPPCL-NaBH₄-O₂ system are much higher than that obsd. in the absence of NaBH₄, and increase with the concn. of NaBH₄. When the reaction temp. increases, the rate of the reaction increases while the selectivity decreases in the system. Both the activity and the selectivity of the reaction in FeTPPCL-NaBH₄-O₂ system are much lower than that in the MnTPPCL-NaBH₄-O₂ system. However, a small amt. of pyridine added in this system can make the rate and the selectivity of the reaction much higher than that in the MnTPPCL-NaBH₄-O₂ system. The dioxygen complex is considered to be the intermediate in the reaction and its formation affects the reaction rate and the selectivity.

IT **Oxidation catalysts**

(metallotetraphenylporphyrins, for di-tert-butylphenol)

IT **14172-90-8** 19414-65-4 28903-71-1 55915-17-8 60430-21-9

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for oxidn. of di-tert-butylphenol)

L1 ANSWER 256 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:464960 HCAPLUS

DOCUMENT NUMBER: 111:64960

TITLE: Method for supporting metalloporphyrins on polybenzimidazole porous articles for catalysts

INVENTOR(S): Shepherd, James P.

PATENT ASSIGNEE(S): Hoechst Celanese Corp., USA

SOURCE: U.S., 10 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4800188	A	19890124	US 1987-28353	19870320

PRIORITY APPLN. INFO.: US 1987-28353 19870320

AB In a method for supporting metalloporphyrins on polybenzimidazole articles to prep. catalysts (e.g., for cyclohexene epoxidn.), microporous polybenzimidazole articles are treated with a strong base to produce an anionized polybenzimidazole article. A metalloporphyrin salt is dissolved in a solvent and is mixed with the anionized polybenzimidazole article to produce a microporous polybenzimidazole metalloporphyrin complex. An alternative method of forming this complex by mixing directly the polybenzimidazole particulate with a weak metalloporphyrin salt without the use of a strong base resulted in lower percentages of substitution than with the principal method.

IT Catalysts and Catalysis
Epoxidation catalysts
 (polybenzimidazole-bound metalloporphyrins, prepn. of)

IT **Porphyrins**
 RL: **CAT (Catalyst use); USES (Uses)**
 (metal complexes, catalysts from
 polybenzimidazole-bound, prepn. of)

L1 ANSWER 257 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1989:413054 HCAPLUS
 DOCUMENT NUMBER: 111:13054
 TITLE: Efficient reduction of dioxygen with ferrocene derivatives, catalyzed by metalloporphyrins in the presence of perchloric acid
 AUTHOR(S): Fukuzumi, Shunichi; Mochizuki, Seiji; Tanaka, Toshio
 CORPORATE SOURCE: Fac. Eng., Osaka Univ., Suita, 565, Japan
 SOURCE: Inorganic Chemistry (1989), 28(12), 2459-65
 CODEN: INOCAJ; ISSN: 0020-1669
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Redn. of O with ferrocene derivs. (Bc) is catalyzed by metalloporphyrins (MTPP+: M = Co, Fe, Mn; TPP = tetraphenylporphyrin) of Co(TIM)3+ (TIM: a tetraaza macrocyclic ligand) in the presence of HClO4 in MeCN. Electron transfer from Fc to MTPP+ is the rate-detg. step for the MTPP+-catalyzed oxidn. of Fc, when the rate is independent of the concn. of O or HClO4. The rate of electron transfer from Fc to Co(TIM)3+ is accelerated by the presence of HClO4 and O. The rates of these electron-transfer reactions are discussed in light of the Marcus theory of electron transfer to distinguish between outer-sphere and inner-sphere electron-transfer processes. The strong inner-sphere nature of metalloporphyrins in the electron-transfer reactions with O in the presence of HClO4 plays an essential role in the catalytic redn. of O.

IT **Oxidation catalysts**
 (metalloporphyrins, for ferrocene derivs., in presence of perchloric acid)

IT **Porphyrins**
 RL: **CAT (Catalyst use); USES (Uses)**
 (metal complexes, catalysts, for oxidn. of
 ferrocene derivs. by oxygen in presence of perchloric acid)

L1 ANSWER 258 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1989:409241 HCAPLUS
 DOCUMENT NUMBER: 111:9241
 TITLE: Process and ionic iron coordination complex catalysts
 containing halogenated ligands for hydrocarbon
 oxidation
 INVENTOR(S): Ellis, Paul E.; Lyons, James E.; Myers, Harry K.
 PATENT ASSIGNEE(S): Sun Refining and Marketing Co., USA
 SOURCE: Eur. Pat. Appl., 8 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 11
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 296712	A2	19881228	EP 1988-304455	19880517
EP 296712	A3	19900214		
EP 296712	B1	19950816		
R: BE, DE, FR, GB, IT, NL				
US 4900871	A	19900213	US 1987-66666	19870626
CA 1305974	A1	19920804	CA 1988-566624	19880512
NO 8802169	A	19890123	NO 1988-2169	19880518
NO 170577	B	19920727		
NO 170577	C	19921104		
JP 01125337	A2	19890517	JP 1988-152483	19880622
SU 1720486	A3	19920315	SU 1988-4355942	19880622
US 5663328	A	19970902	US 1996-672202	19960627
PRIORITY APPLN. INFO.:			US 1987-66666	19870626
			US 1987-246	19870102
			US 1989-425089	19891023
			US 1990-568116	19900816
			US 1994-303106	19940907

AB Unactivated alkanes are readily oxidized to alcs. or higher oxidn. state
 derivs., e.g., ketones, acids, esters, with O in the presence of catalysts
 comprising iron coordination complexes contg. halogenated ligands. These
 catalysts and this process obviate the need for added expensive
 nonregeneratable oxidants reductants or other cocatalysts. Propane was
 oxidized in the presence of 0.023 mol Fe(TPPF)Cl (TPPF =
 tetrakis(pentafluorophenyl)porphyrinato) to a 0.96 molar ratio mixt. of
 iso-PrOH/Me₂CO at 125.degree. over 6 h with 675.0 catalyst turnovers
 (moles Me₂CO and iso-PrOH formed per mol catalyst used).

IT **Oxidation catalysts**
 (ionic iron coordination compds. with halogenated ligands, for alkanes
 without cocatalysts in air)

IT **16456-81-8** 121162-99-0
 RL: **CAT (Catalyst use); USES (Uses)**
 (catalysts, for propane oxidn.)

L1 ANSWER 259 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1989:172849 HCAPLUS
 DOCUMENT NUMBER: 110:172849
 TITLE: Oxidation of anthracene catalyzed by a
 metalloporphyrin-reducing agent system under
 extrusion-explosion conditions

AUTHOR(S): Knunyants, M. I.; Lukashova, E. A.; Solov'eva, A. B.;
Kryuchkov, A. N.; Prut, E. V.; Enikolopyan, N. S.
CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR
SOURCE: Doklady Akademii Nauk SSSR (1988), 301(3), 644-6
[Phys. Chem.]
CODEN: DANKAS; ISSN: 0002-3264
DOCUMENT TYPE: Journal
LANGUAGE: Russian
OTHER SOURCE(S): CASREACT 110:172849
AB The title reaction with Co tetraphenylporphyrin (CoTPP)-NaBH₄ at 1.7-1.9
GPa in air gave 25% anthraquinone (I) and 25% 9,10-anthracene endoperoxide
(II). No products were obsd. from a degassed mixt. in Ar, traces of I and
II were formed in homogeneous oxidn., and only 1% I was formed under
hydrostatic conditions. FeTPP-NaBH₄ gave 1% each I and II in air but 20%
I and 30% II under homogeneous conditions, while MnTPP-NaBH₄ gave 2% I and
1% II in air and 60% I and 20% II from homogeneous oxidn. Cholesterol was
inert to CoTPP under all conditions tested, but Fe- and MnTPP gave 20% and
100% 3.beta.,5.alpha.-cholestanediol from homogeneous oxidn., resp.
IT **Oxidation catalysts**
(tetraphenylporphyrin transition-metal complexes, for anthracene under
extrusion-explosion conditions)
IT **14172-90-8** 16591-56-3, Iron tetraphenylporphyrin 31004-82-7
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, with sodium borohydride, for oxidn. of anthracene and
cholesterol)
L1 ANSWER 260 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1989:172411 HCAPLUS
DOCUMENT NUMBER: 110:172411
TITLE: Development of porphyrin complexes as robust
homogeneous catalysts and catalytic epoxidation
reactions similar to the enzymic process of cytochrome
P450. Iron(III) and manganese(III) complexes of
5,10,15,20-tetrakis(2,6-difluorophenyl)porphyrin
AUTHOR(S): Takahashi, Eitaro; Amatsu, Hiroyuki; Miyamoto, T. Ken;
Sasaki, Yukiyo
CORPORATE SOURCE: Fac. Sci., Univ. Tokyo, Tokyo, 113, Japan
SOURCE: Nippon Kagaku Kaishi (1988), (4), 480-6
CODEN: NKAKB8; ISSN: 0369-4577
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB Epoxidn. reactions catalyzed by synthetic metalloporphyrins for the
development of both efficient catalysts and a new model system for the
shunt mechanism of cytochrome P 450 were studied. The max. yields and the
reaction rates of epoxidn. of styrenes and cycloalkenes with hypochlorite
catalyzed by Fe and Mn complexes of the fluorinated porphyrins were detd.
The Mn complex of 5,10,15,20-tetrakis(2,6-difluorophenyl)porphyrin (TF2P)
showed a high catalytic activity with a yield of 200,000 turnover nos. in
.alpha.-methylstyrene epoxidn. in the presence of a nitrogen base, and it
was a practical oxidn. catalyst in the lab. scale. In systems where
hypochlorite is an oxygen source, sufficient stability of the Fe porphyrin
complexes against oxidative decompn. is generally required for use of the
complex as a catalyst. This stability was achieved by protection of the
meso positions of the porphine core with fluorine atoms at the ortho
positions of the Ph rings. The Fe complex of TF2P was suitable for
cycloalkene epoxidns., having a max. yield and reaction rates superior to
those of the Mn complex. The Fe complexes simplified the reaction system

without the involvement of nitrogen base and, in the case of styrene epoxidn., suppressed the formation of byproducts. At a low level of Fe complexes as the catalyst, the initial rates of epoxidn. exhibited substrate satn. kinetics similar to enzymic processes. Thus, the iron porphyrin-hypochlorite system could be a good model for oxidn. by cytochrome P 450.

IT **Epoxidation catalysts**

(metal porphyrin complexes, for styrenes and cycloalkenes)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(**vanadyl complexes**, catalysts, for epoxidn. of cycloalkenes and styrenes)

L1 ANSWER 261 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:153439 HCAPLUS

DOCUMENT NUMBER: 110:153439

TITLE: Metalloporphyrin catalysis of the nonchain oxidation of olefins

AUTHOR(S): Enikolopyan, N. S.; Solov'eva, A. B.

CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR

SOURCE: Zhurnal Fizicheskoi Khimii (1988), 62(9), 2289-307

CODEN: ZFKHA9; ISSN: 0044-4537

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Russian

AB A review with 37 refs. including the kinetics and mechanism of the title reactions.

IT **Oxidation catalysts**

(metalloporphyrins, for olefins)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(**metal complexes**, catalysts, for oxidn. of olefins)

L1 ANSWER 262 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:134345 HCAPLUS

DOCUMENT NUMBER: 110:134345

TITLE: Are intermediates with a metal-carbon bond involved in oxygenation reactions catalyzed by metalloporphyrins?

AUTHOR(S): Meunier, Bernard

CORPORATE SOURCE: Lab. Chim. Coord., CNRS, Toulouse, F-31077, Fr.

SOURCE: Gazzetta Chimica Italiana (1988), 118(7), 485-93

CODEN: GCITA9; ISSN: 0016-5603

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB Arguments in favor of the formation of intermediates contg. metal-carbon bonds in oxygenation reactions catalyzed by metalloporphyrins were reviewed with 67 refs. The absence of a simple relationship between the oxidn. potentials of various olefins and the Km values (Km being the Michaelis-Menten const.) in their epoxidn. by the NaOCl/MnIII(porphyrin)Cl system is noted.

IT **Epoxidation catalysts**

(metalloporphyrins, for alkenes)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(**metal complexes**, catalysts, for oxygenation of alkenes)

L1 ANSWER 263 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1989:25679 HCAPLUS
DOCUMENT NUMBER: 110:25679
TITLE: Partial oxidation of methane using supported porphyrin and phthalocyanine complexes
AUTHOR(S): Chan, Yee Wai; Wilson, Robert B., Jr.
CORPORATE SOURCE: Inorg. Organomet. Prog., SRI Int., Menlo Park, CA, 94025, USA
SOURCE: Preprints of Papers - American Chemical Society, Division of Fuel Chemistry (1988), 33(3), 453-61
CODEN: ACFPAI; ISSN: 0569-3772
DOCUMENT TYPE: Journal
LANGUAGE: English
AB CH₄ was oxidized in the presence of zeolite Y-encaged Co, Fe, Ru, and Mn complexes with phthalocyanine and tetraphenylporphyrin, and tetrasulphophthalocyanine complexes with Fe, Ru, Pd, and Cu on MgO carrier at conversions <10% to provide CO₂ and H₂O as the major products. However, the Ru phthalocyanine complex gave >11% selectivity to MeOH and the Pd tetrasulphophthalocyanine complex provided >2% selectivity to C₂H₆.
IT **Oxidation catalysts**
(supported, phthalocyanine and porphyrin complexes, for methane, selectivity of)
IT 132-16-1 3317-67-7, Cobalt phthalocyanine **14172-90-8**
14325-24-7 16591-56-3, Iron tetraphenylporphyrin 27636-56-2, Ruthenium phthalocyanine 31004-82-7 79231-60-0
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, zeolite-encaged, for oxidn. of methane)

L1 ANSWER 264 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1988:630003 HCAPLUS
DOCUMENT NUMBER: 109:230003
TITLE: Catalytic homogeneous functionalization of adamantane. Influence of electronic and structural features of the metalloporphyrin catalyst on atom transfer selectivity (oxygenation versus acidification/halogenation)
AUTHOR(S): Brown, Robert B., Jr.; Hill, Craig L.
CORPORATE SOURCE: Dep. Chem., Emory Univ., Atlanta, GA, 30322, USA
SOURCE: Journal of Organic Chemistry (1988), 53(24), 5762-8
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 109:230003
AB Upon treatment of the two phase systems, Mn tetraarylporphyrin and alkane (org. phase)/Na⁺ X⁻ (aq. phase; X⁻ = halide or acid), with iodosylarenes, both alcs. and alkyl acids (or halides) are formed from the alkane substrates. The Mn porphyrin functions as a catalyst for alkane oxygenation and as a phase-transfer catalyst for X⁻. Catalytic functionalization of the exemplary caged alkane, adamantane, by a variety of these two-phase systems as a function of the reaction conditions has been examd. The results reported here allow, for the first time, an assessment of the relationship between the electronic and structural features of the metalloporphyrin catalysts and their selectivity with respect to the replacement of unactivated alkane carbon-hydrogen bonds with oxygen vs. nonoxygen (halide or acid) functional groups. Of the first-row transition metal metalloporphyrins, only those of Mn are active for both the cleavage of unactivated alkane C-H bonds and replacement of these bonds by halogen or nitrogen-based groups. The oxygen donors that give the highest yields of these nonoxygenated products are the

iodosylarenes. Examn. of adamantane functionalization by iodosylarenes catalyzed by eight different Mn tetraphenylporphyrin derivs., whose porphyrin ligands vary widely in their electron-donating ability, establishes that the relative tertiary-secondary C-H cleavage selectivities are minimally affected by such electronic effects. In contrast, the selectivity for incorporation of the nonoxygen vs. oxygen functions is substantially affected by the electron-donating ability of the catalyst porphyrin rings. The more electron withdrawing the porphyrin ring, and consequently the more anodic the potential of the ligated, S = 2, manganese(III) ion, the lower the selectivity for incorporation of the nonoxygen functions. Functionalization of adamantane catalyzed by the most electron-poor manganese porphyrin complex, Mn(III)(F20TPP)X, is effectively selective for oxygenation. All the metalloporphyrins examd. here eventually succumb to deactivation by irreversible oxidative degrdn. of the org. porphyrin ligand.

IT Halogenation catalysts

Oxidation catalysts

(metalloporphyrins, for adamantane in presence of iodosylarenes)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(**metal complexes**, catalysts, for functionalization of adamantane in presence of iodosylarenes)

IT **16456-81-8** 28110-70-5 32195-55-4 55290-32-9 56413-47-9
60166-10-1 117094-58-3 117094-59-4 117094-60-7 117094-61-8
117094-62-9 117094-63-0 117094-64-1 117094-65-2 117094-66-3
117094-67-4 117094-68-5 117094-69-6 117094-70-9 117094-71-0

RL: **CAT (Catalyst use); USES (Uses)**

(catalysts, for functionalization of adamantane in presence of iodosylarenes)

L1 ANSWER 265 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:630002 HCAPLUS

DOCUMENT NUMBER: 109:230002

TITLE: Monooxygenase-like oxidation of hydrocarbons by hydrogen peroxide catalyzed by manganese porphyrins and imidazole: selection of the best catalytic system and nature of the active oxygen species

AUTHOR(S): Battioni, P.; Renaud, J. P.; Bartoli, J. F.;

CORPORATE SOURCE: Reina-Artiles, M.; Fort, M.; Mansuy, Daniel
Lab. Chim. Biochim. Pharmacol. Toxicol., CNRS, Paris, 75270, Fr.

SOURCE: Journal of the American Chemical Society (1988), 110(25), 8462-70

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 109:230002

AB Fe and Mn porphyrins alone are almost unable to catalyze cyclooctene epoxidn. or cyclooctane hydroxylation by H2O2. In the presence of imidazole, Mn(III) porphyrins, and particularly Mn(TDCPP)Cl, are much better catalysts than Fe porphyrins for oxygen-atom transfer from H2O2 to hydrocarbons. From a study of various Mn porphyrin catalysts and nitrogen base cocatalysts, the most efficient system that has been selected involves Mn(TDCPP)Cl in the presence of 10-20 equiv of imidazole. This system leads to high yields of alkene epoxidn. (90-100% in less than 1 h at room temp.). Epoxidn. of 1,2-dialkylethylenes is stereospecific and corresponds to a syn addn. of an oxygen atom to the double bond. This

system also leads to the oxidn. by H₂O₂ of various alkanes such as cyclohexane, cyclooctane, adamantane, ethylbenzene or tetralin, with formation of the corresponding alcs. and ketones in yields between 40 and 80%. The Mn(TDCPP)Cl-imidazole-PhIO and Mn(TDCPP)Cl-imidazole-H₂O₂ systems exhibit the following: (i) identical stereospecificities for the epoxidn. of stilbene and hex-2-ene, (ii) identical regioselectivities for the epoxidn. of isoprene and limonene as well as for the hydroxylation of n-heptane, and (iii) almost identical chemoselectivities for the oxidn. of cyclohexene and of mixts. of cyclooctane. This indicates that very similar, if not identical, high-valent Mn-oxo-intermediates are the active oxygenating species in both systems. Thus, thanks to the presence of imidazole, it is possible to perform efficient biomimetic monooxygenations of hydrocarbons by using the Mn(TDCPP)Cl catalyst and H₂O₂ instead of PhIO as the oxygen-atom donor.

IT **Oxidation catalysts**

(manganese porphyrin with imidazole, for hydrocarbons)

IT **Epoxidation catalysts**

Hydroxylation catalysts

(manganese porphyrins with imidazole, for alkanes)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(**metal complexes**, catalysts from imidazole and, for oxidn. of hydrocarbons)

IT **16456-81-8** 117226-86-5 117226-88-7

RL: **CAT (Catalyst use)**; USES (Uses)

(catalytic activity of, in oxidn. of hydrocarbons)

L1 ANSWER 266 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:548722 HCAPLUS

DOCUMENT NUMBER: 109:148722

TITLE: Propylene oxidation on an immobilized complex of iron protoporphyrin

AUTHOR(S): Nagiev, T. M.; Nagieva, Z. M.; Tagieva, Sh. A.

CORPORATE SOURCE: Inst. Theor. Probl. Chem. Technol., Baku, 370143, USSR

SOURCE: Heterogeneous Catalysis (1987), 6th, Pt. 2, 13-18

CODEN: HECAEJ

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The direction of the title reaction can be affected by the contact time: the optimal contact times for propylene oxide (I) and allyl alc. (II) are 1.9 and 0.9 s, resp. The activation energies for formation of I and II are 10.2 and 10.3 kcal/mol, resp. The closeness of this system to that of P 450 cytochrome is noted.

IT **Oxidation catalysts**

(iron protoporphyrin, for propene)

IT **14875-96-8**, Iron protoporphyrin

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, immobilized on alumina, for oxidn. of propene)

L1 ANSWER 267 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:454396 HCAPLUS

DOCUMENT NUMBER: 109:54396

TITLE: The oxidation of olefins with oxygen and sodium borohydride catalyzed by manganese

meso-tetrakis(p-sulfonatophenyl)porphin

AUTHOR(S): Shimizu, Masao; Orita, Hideo; Hayakawa, Takashi;

Takehira, Katsuomi

CORPORATE SOURCE: Tsukuba Res. Cent., Natl. Chem. Lab. Ind., Yatabe, 305, Japan
SOURCE: Journal of Molecular Catalysis (1988), 45(1), 85-90
CODEN: JMCADS; ISSN: 0304-5102
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 109:54396

AB Oxidn. of olefins, e.g. cyclohexene, PhCH:CH₂ and PhCH:CHMe, with O-NaBH₄-N-methylimidazole in MeOH catalyzed by the title porphin gave 36-64% cyclohexanol, PhCH(OH)Me, and PhCH(OH)Et, resp. A mechanism for the catalysis involving a nonmetal oxo-type intermediate was proposed.

IT **Oxidation catalysts**
(manganese tetrakis(sulfonatophenyl)porphin, for alkenes with oxygen and sodium borohydride, alc. from)

IT **16456-81-8** 32195-55-4 73215-30-2 83006-36-4

RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for oxidn. of alkene with oxygen and sodium borohydride)

L1 ANSWER 268 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:438985 HCAPLUS

DOCUMENT NUMBER: 109:38985

TITLE: Polymer-supported metal complex oxidation catalysts

AUTHOR(S): Sherrington, David C.

CORPORATE SOURCE: Dep. Pure Appl. Chem., Univ. Strathclyde, Glasgow, G1 1XL, UK

SOURCE: Pure and Applied Chemistry (1988), 60(3), 401-14

CODEN: PACHAS; ISSN: 0033-4545

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB Recent developments involving polymer-supported metal complexes as catalysts in oxidn. reactions, using dioxygen, H₂O₂, alkyl hydroperoxides, hypochlorite anion and iodosobenzene as oxidants are reviewed with 69 refs. Supported metallo-porphyrins are described for the reversible binding of dioxygen, and in catalysis, along with the structurally closely related metallo-phthalocyanines. Dialkylphenol oxidative polymn. catalyzed by polymer-supported Cu²⁺ complexes is reviewed along with more recent developments of supported Pd²⁺ Wacker-type catalysts. Novel Nafion-supported Rh³⁺, Cr³⁺, and Ce⁴⁺ complexes are described and their potentials for application in hostile chem. environments are emphasized. Alkene epoxidns. using tert-BuOOH catalyzed by polymer-supported V⁵⁺ and Mo⁶⁺ species are dealt with in some detail because of the industrial potential of these systems, and the recent advances reported in the literature. Finally polymer-supported As, Se, and Te catalysts are described. Though not strictly metal complexes, these are very closely related to metal complex catalyzed H₂O₂ oxidns.

IT **Oxidation catalysts**
(metal complexes, polymer-supported)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)
(**metal complexes**, catalysts, polymer-supported, for oxidn. reactions)

L1 ANSWER 269 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:437561 HCAPLUS

DOCUMENT NUMBER: 109:37561

TITLE: Effect of catalyst on the oxygenation of styrene with tetrahydroborate(1-) ion and molecular oxygen

AUTHOR(S): Okamoto, Tadashi; Sasaki, Yoshihiro; Sasaki, Ken; Oka, Shinzaburo
CORPORATE SOURCE: Inst. Chem. Res., Kyoto Univ., Uji, 611, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1987),
60(12), 4449-50
CODEN: BCSJA8; ISSN: 0009-2673
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 109:37561
AB The effects of equatorial ligands and central metals of transition metal catalysts in the catalytic conversion of styrene to HOCHPhMe were examd. Accompanying hydrogenation and hydrodimerization of the substrate to PhEt and Me(CHPh)2Me, resp., were facilitated in the presence of catalysts ligated with electron-releasing ligands such as 1,4,8,11-tetraazacyclotetradecane or S-contg. ligands.
IT **Oxidation catalysts**
(cobalt, iron, and manganese complexes, for styrene with oxygen and tetrahydroborate)
IT 132-16-1 3317-67-7 14167-18-1 **14172-90-8** 15665-27-7
16456-81-8 36451-49-7 36802-28-5 41254-15-3 58356-65-3
61872-12-6 66984-46-1 98820-22-5
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for oxygenation of styrene with oxygen and tetrahydroborate)

L1 ANSWER 270 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1988:423196 HCAPLUS
DOCUMENT NUMBER: 109:23196
TITLE: Mechanism of the nonchain aerobic oxidation of olefins in the presence of manganese porphyrinate + sodium borohydride system. Identification of the intermediate
AUTHOR(S): Lukashova, E. A.; Solov'eva, A. B.; Pivnitskii, K. K.; Mel'nikova, V. I.; Karmilova, L. V.; Kitaigorodskii, A. N.; Enikolopyan, N. S.
CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR
SOURCE: Doklady Akademii Nauk SSSR (1987), 296(2), 385-7
[Phys. Chem.]
CODEN: DANKAS; ISSN: 0002-3264
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB Intermediate I, isolated in .ltoreq.20% yield in the regioselective oxidn. of cholesterol with the title system, signifies the presence of cyclic or acyclic Mn peroxide intermediates in the analogous oxidn. of olefins.
IT **Porphyrins**
RL: **CAT (Catalyst use)**; USES (Uses)
(**manganese complexes**, catalysts from sodium borohydride and, for oxidn. of cholesterol)
IT **Oxidation catalysts**
(regioselective, manganese porphyrin-sodium borohydride, for cholesterol)

L1 ANSWER 271 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1988:211092 HCAPLUS
DOCUMENT NUMBER: 108:211092
TITLE: Elucidation of chemical interaction in the macrocyclic metal complex-metal oxide systems and application of their functions
AUTHOR(S): Mochida, Isao

CORPORATE SOURCE: Inst. Adv. Mater. Study, Kyushu Univ., Fukuoka, 816, Japan

SOURCE: Kenkyu Hokoku - Asahi Garasu Kogyo Gijutsu Shoreikai (1987), 50, 177-85
CODEN: AGKGAA; ISSN: 0365-2599

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The dependence of catalytic properties of TiO₂-supported CoTPP (Co tetraphenylporphyrin complex) on support nature and preheating conditions was examd. for 2 kinds of supported CoTPP catalysts. Kinetic studies were made for CO-O₂, NO-CO, and NO-H₂ reactions. Adsorption of 1 or 2 components, catalyst poisoning, ESR data, thermogravimetry during preheating, and soly. of supported CoTPP are discussed. One catalyst was prepd. by impregnating TiO₂ prepd. from TiO(SO₄) by calcination at 120.degree. with a C₆H₆ soln. of CoTPP and heating in vacuum at 250.degree. before use. The other catalyst was prepd. in the similar way except that the calcination and preheating temps. were 300.degree. and 200.degree., resp. The effect of preadsorption of H₂O or O₂ was examd. on the CO-O₂ reaction. ESR spectra were taken in the absence and presence of O₂. The catalyst activities depend greatly on the support nature and on the preheating temps. For the CO-O₂ and NO-CO reactions, the 1st catalyst is more active, while the activity order is reversed for the NO-H₂ reaction. Preheating the first catalyst causes oxidative dimerization of CoTPP and generation of O vacancies on the TiO₂ surface to provide sites with high activation capability for CO, NO, and O₂, whereas preheating the 2nd catalyst causes electron donation to CoTPP (with no structural change) from completely dehydrated TiO₂ surface, and the ligand anion radical which is formed displays a high activation ability for H₂. Sepn. of CO from mixed gases by the 1st catalyst is discussed.

IT **Oxidation catalysts**

(cobalt tetraphenylporphyrin-titania, for carbon monoxide)

IT **14172-90-8, Cobalt tetraphenylporphine**

RL: **CAT (Catalyst use); USES (Uses)**

(catalyst, titania-supported, for oxidn. of carbon monoxide)

L1 ANSWER 272 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:207385 HCAPLUS

DOCUMENT NUMBER: 108:207385

TITLE: Liquid-phase oxidation of hydrogen sulfide in the presence of native and modified petroleum porphyrins

AUTHOR(S): Zemtseva, L. I.; Antipenko, V. R.; Vil'danov, A. F.; Mazgarov, A. M.

CORPORATE SOURCE: USSR

SOURCE: Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation) (1988), 61(3), 688-90
CODEN: ZPKHAB; ISSN: 0044-4618

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The oxidn. of H₂S (0.1 mol/L) in DMF is catalyzed by 1.7 .times. 10⁻⁵ mol/L synthetic Fe etioporphyrin or Fe complexes of natural petroleum porphyrins. VO porphyrins are inactive, and so are Co porphyrins.

IT **Oxidation catalysts**

(iron porphyrins, for hydrogen sulfide)

IT **Porphyrins**

RL: **CAT (Catalyst use); USES (Uses)**

(iron complexes, oxidn. catalysts, for hydrogen sulfide)

L1 ANSWER 273 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1988:149987 HCAPLUS
DOCUMENT NUMBER: 108:149987
TITLE: Transition metal porphyrins as catalysts in the
oxidation of nitroso compounds
AUTHOR(S): Joergensen, Karl Anker
CORPORATE SOURCE: Chem. Inst., Aarhus Univ., Aarhus, DK-8000, Den.
SOURCE: Journal of the Chemical Society, Chemical
Communications (1987), (18), 1405-6
CODEN: JCCCAT; ISSN: 0022-4936
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 108:149987
AB RNO (R = Me3C, Ph, 2-MeOC6H4, 4-MeOC6H4, 4-Me2NC6H4, 4-BrC6H4) were
oxidized with PhIO in the presence of Fe(III) or Mn(III) porphyrin
catalysts to give 75-90% RNO2.
IT **Oxidation catalysts**
(metal porphyrins, for nitroso compds. with iodosylbenzene)
IT **16456-81-8** 32195-55-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for oxidn. of nitroso compds. with iodosylbenzene, nitro
compds. from)

L1 ANSWER 274 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1988:111595 HCAPLUS
DOCUMENT NUMBER: 108:111595
TITLE: Biomimetic oxidation with molecular oxygen. Selective
carbon-carbon bond cleavage of 1,2-diols by molecular
oxygen and dihydropyridine in the presence of
iron-porphyrin catalysts
AUTHOR(S): Okamoto, Tadashi; Sasaki, Ken; Oka, Shinzaburo
CORPORATE SOURCE: Chem. Res., Kyoto Univ., Kyoto, 611, Japan
SOURCE: Journal of the American Chemical Society (1988),
110(4), 1187-96
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 108:111595
AB The selective C-C bond cleavage of 1,2-diols in the presence of an
iron-porphyrin complex, mol. oxygen, and 1-benzyl-3-carbamoyl-1,4-
dihydropyridine is reported. The C-C bonds of aryl-substituted
ethane-1,2-diols were cleaved exclusively to aldehydes or ketones as the
oxidn. products at room temp. The reaction rates were influenced by the
steric hindrance of the substituents both in the catalysts and diols, but
no differences in the reactivities were obsd. between the two
stereoisomers (meso and dl) of diols. A kinetic anal. of this bond
cleavage reaction is consistent with the reaction mechanism consisting of
the initial binding of diol on the active catalyst forming an intermediate
complex and its subsequent breakdown in the rate-detg. step of the
catalytic cycle. The initial binding step is favorable for
electron-deficient diols and is influenced by steric hindrance; the
rate-detg. bond cleavage step is accelerated by electron-rich diols and
unaffected by the steric effect. The mechanism of this diol cleavage
reaction is discussed on the basis of these observations.
IT **Oxidation catalysts**
(aut-, photochem., dihydropyridine with iron

porphyrins, for diols, kinetics and mechanism of carbon-carbon bond cleavage with)

IT 16456-81-8

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for photochem. autoxidative carbon-carbon bond cleavage of diols, kinetics and mechanism with)

IT 14024-17-0 14172-90-8 36965-70-5 52155-50-7 57715-43-2

58356-65-3 77439-21-5 93842-71-8 93862-22-7

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for photochem. autoxidative carbon-carbon bond cleavage of diols, mechanism with)

L1 ANSWER 275 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:111590 HCAPLUS

DOCUMENT NUMBER: 108:111590

TITLE: Oxidation of aromatic aldehydes in the presence of metallotetraphenylporphyrins

AUTHOR(S): Wang, Xianyuan; Wang, Rou; Li, Guangqing; Li, Guangnian

CORPORATE SOURCE: Chengdu Inst. Org. Chem., Acad. Sin., Chengdu, Peop. Rep. China

SOURCE: Huaxue Xuebao (1987), 45(8), 780-4
CODEN: HHHPA4; ISSN: 0567-7351

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB In the presence of metallotetraphenylporphyrins [(Co(II)TPP, Fe(III)TPPCL, Mn(III)TPPCL, Cu(II)TPP, and Zn(II)TPP, TPP = tetraphenylporphyrin], the oxidn. of RC6H4CHO (R = H, 4-Cl) with mol. oxygen has been investigated. The oxygen uptake and changes in the electronic spectrum of metallotetraphenylporphyrins during the course of the reaction were measured. It was obsd. that besides Co(II)TPP that can reversibly bind mol. oxygen, Fe(III)TPPCL and Mn(III)TPPCL which are not capable of binding mol. oxygen reversibly can also catalyze the oxidn. of aldehydes, while Cu(II)TPP and Zn(II)TPP are inactive. The oxidn. reaction, however, is catalyzed by some catalytically active species which is formed from the interaction between metalloporphyrin and percarboxylic acid accumulated during the course of the reaction with the destruction of porphyrin ring, and is inhibited by the metalloporphyrin itself. In the reaction systems, the metalloporphyrins are nominal catalysts. It seems that the catalytic role of metallotetraphenylporphyrin in the oxidn. of arom. aldehydes should not be attributed to its capability of activating mol. oxygen.

IT Oxidation catalysts

(metalloporphyrins, for benzaldehydes with oxygen)

IT 14074-80-7 14172-90-8 14172-91-9 16456-81-8

32195-55-4

RL: CAT (Catalyst use); USES (Uses)

(catalyst, for oxidn. of benzaldehyde with oxygen)

L1 ANSWER 276 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:55291 HCAPLUS

DOCUMENT NUMBER: 108:55291

TITLE: Aerobic oxidation of anthracene in the presence of manganese porphyrinates and sodium tetrahydroborate reducing agent

AUTHOR(S): Lukashova, E. A.; Solov'eva, A. B.; Chugreev, A. L.; Enikolopyan, N. S.

CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR

SOURCE: Doklady Akademii Nauk SSSR (1987), 294(5), 1167-9
[Phys. Chem.]
CODEN: DANKAS; ISSN: 0002-3264

DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Rate consts. were detd. for anthracene oxidn. by O₂ in the presence of Mn porphyrins and NaBH₄, the only product of which was anthraquinone. The role of quasisinglet O₂ was discussed.

IT **Oxidation catalysts**
(manganese porphyrins, for anthracene in presence of borohydride)

IT **16456-81-8** 58356-65-3 101565-35-9 107532-66-1 107546-90-7
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for oxidn. of anthracene in presence of borohydride)

L1 ANSWER 277 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1988:37015 HCAPLUS
DOCUMENT NUMBER: 108:37015
TITLE: Electrochemical model of alkane oxidation by cytochrome P-450

AUTHOR(S): Khenkin, A. M.; Shilov, A. E.
CORPORATE SOURCE: Inst. Chem. Phys., Chernogolovka, 142432, USSR
SOURCE: Reaction Kinetics and Catalysis Letters (1987), 33(1), 125-30
CODEN: RKCLAU; ISSN: 0304-4122

DOCUMENT TYPE: Journal
LANGUAGE: English

AB Catalytic oxidn. of alkanes to alcs. and ketones was shown to take place in an electrochem. cell with iron porphyrin deposited on a graphite cathode. The oxidn. mechanism was assumed to be similar to that of cytochrome P 450 action.

IT **Oxidation catalysts**
(electrochem., iron porphyrin, as electrochem. model of alkane oxidn. by cytochrome P 450)

IT **16456-81-8**, Iron tetraphenylporphyrin chloride
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for electrooxidn. of hydrocarbons)

L1 ANSWER 278 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:617135 HCAPLUS
DOCUMENT NUMBER: 107:217135
TITLE: Photooxidation of dispiro[2.0.2.4]deca-7,9-diene and its analogs: synthesis and properties of new nonenolizable cyclohex-2-ene-1,4-diones

AUTHOR(S): De Meijere, Armin; Kaufmann, Dieter; Erden, Ihsan
CORPORATE SOURCE: Inst. Org. Chem., Univ. Hamburg, Hamburg, D-2000/13, Fed. Rep. Ger.

SOURCE: Tetrahedron (1986), 42(23), 6487-94
CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 107:217135

AB Photooxidn. of the title compd. (I) and its monospiro and tetra-Me analogs gave the corresponding 1,4-endoperoxides, e.g., II, in 60-77% yields. Chem. transformations of these provided some new oxygen functionalized cyclohexane and cyclohexene derivs. Base-catalyzed rearrangement of the endoperoxides and subsequent oxidn. of the resulting hydroxyketones with chromic acid gave enediones, e.g. III. The extent of conjugation with the

spirocyclopropane groups in these systems was explored.

IT **Oxidation catalysts**

(photochem., tetraphenylporphyrin, for spirocyclopropylcyclohexadienes and tetramethylcyclohexadiene to spirocyclopropyl and tetra-Me endoperoxides)

IT **14172-90-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for rearrangement of unsatd. endoperoxide)

L1 ANSWER 279 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:597292 HCAPLUS

DOCUMENT NUMBER: 107:197292

TITLE: Mechanism of propylene epoxidation by hydrogen peroxide in the presence of $\text{PPFe}^{2+} \cdot \text{OH} / \alpha\text{-alumina}$ (model for cytochrome P-450)

AUTHOR(S): Nagiev, T. M.; Nagieva, Z. M.; Tagieva, Sh. A.

CORPORATE SOURCE: Mosk. Gos. Univ., Moscow, USSR

SOURCE: Vestnik Moskovskogo Universiteta, Seriya 2: Khimiya (1987), 28(1), 42-5

CODEN: VMUKA5; ISSN: 0579-9384

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB In the title reaction using protoporphyrin IX as catalyst, propylene oxide is formed from propylene via allyl alc. The mechanisms of formation of propanal and acetone are also discussed.

IT **Epoxidation catalysts**

Oxidation catalysts

(cytochrome P 450 model, for propene)

IT **15489-90-4**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for epoxidn. and oxidn. of propene)

L1 ANSWER 280 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:515442 HCAPLUS

DOCUMENT NUMBER: 107:115442

TITLE: Oxidation of propylene by hydrogen peroxide in the presence of $\text{PPFe}^{3+} \cdot \text{OH} / \alpha\text{-alumina}$ (analog of cytochrome P-450)

AUTHOR(S): Nagiev, T. M.; Nagieva, Z. M.; Tagieva, S. A.

CORPORATE SOURCE: USSR

SOURCE: Vestnik Moskovskogo Universiteta, Seriya 2: Khimiya (1986), 27(6), 564-7

CODEN: VMUKA5; ISSN: 0579-9384

DOCUMENT TYPE: Journal

LANGUAGE: Russian

OTHER SOURCE(S): CASREACT 107:115442

AB The title reaction proceeded with .gtoreq.90% conversion by a heterolytic mechanism. As the H_2O_2 concn. was increased, the yield of propylene oxide passed through a max. The catalyst was not changed significantly in the reaction.

IT **Epoxidation catalysts**

Oxidation catalysts

(iron porphyrin, for propene by hydrogen peroxide)

IT **15489-90-4**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for oxidn. of propene by hydrogen peroxide)

L1 ANSWER 281 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1987:496517 HCAPLUS
DOCUMENT NUMBER: 107:96517
TITLE: Epoxidation of propylene with hydrogen peroxide over
hemin supported on .alpha.-alumina
AUTHOR(S): Nagieva, Z. M.; Tagieva, Sh. A.; Zul'fugarova, S. Z.;
Nagiev, T. M.
CORPORATE SOURCE: Inst. Teor. Probl. Khim. Tekhnol., Baku, USSR
SOURCE: Azerbaidzhanskii Khimicheskii Zhurnal (1986), (2),
76-81
CODEN: AZKZAU; ISSN: 0005-2531
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB The title reaction gave 59% propylene oxide (I), 7-10% Me2CO, 8-13% EtCHO,
and 12-13% allyl alc. at 160.degree.. Increasing the temp. to 220.degree.
gave 45% EtCHO and 25% I.
IT **Epoxidation catalysts**
(hemin, for propylene)
IT **16009-13-5, Hemin**
RL: **CAT (Catalyst use); USES (Uses)**
(catalysts, with alumina, for epoxidn. of propylene)

L1 ANSWER 282 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1987:477332 HCAPLUS
DOCUMENT NUMBER: 107:77332
TITLE: Cobalt-catalyzed conversion of aliphatic olefins to
alcohols by molecular oxygen and borohydride (BH4-)
AUTHOR(S): Okamoto, Tadashi; Oka, Shinzaburo
CORPORATE SOURCE: Inst. Chem. Res., Kyoto Univ., Uji, 611, Japan
SOURCE: Bulletin of the Institute for Chemical Research, Kyoto
University (1986), 64(3), 104-6
CODEN: BICRAS; ISSN: 0023-6071
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 107:77332
AB Cyclohexene, methylcyclohexene isomers, and 1-hexene were hydrated to
alcs. over bis(dimethylglyoximate)chloro(pyridine)cobalt(III) and NaBH4.
IT **Oxidation catalysts**
(cobalt complex-sodium borohydride, for cyclohexene, methylcyclohexene
and hexene, alcs. from)
IT **14172-90-8**
RL: **CAT (Catalyst use); USES (Uses)**
(catalysts contg., for hydration of hexene)

L1 ANSWER 283 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1987:458320 HCAPLUS
DOCUMENT NUMBER: 107:58320
TITLE: Mechanisms of hemin-catalyzed epoxidations: electron
transfer from alkenes
AUTHOR(S): Traylor, Teddy G.; Miksztal, Andrew R.
CORPORATE SOURCE: Dep. Chem., Univ. California, San Diego, La Jolla, CA,
92093, USA
SOURCE: Journal of the American Chemical Society (1987),
109(9), 2770-4
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English

OTHER SOURCE(S): CASREACT 107:58320

AB Two rearrangements of alkenes, known to proceed through the intermediacy of the alkene cation radical, accompanied the hemin-catalyzed epoxidns. of these alkenes. Hexamethyl-Dewar benzene partially rearranged to hexamethylbenzene during its epoxidn. with (tetraphenylporphyrinato)iron(II) chloride and m-chloroperbenzoic acid, but not with either of the reagents sep. In a similar manner diene (I) closed to birdcage hydrocarbon (II) under these conditions. This diene also brought about some N-alkylation of the catalyst during the reaction. These observations are interpreted in terms of an electron transfer from alkene to the high-valence iron intermediate, leading to both rearrangement and epoxidn.

IT **Epoxidation catalysts**

Rearrangement catalysts

(iron porphyrin, for hexamethyl-Dewar benzene and hexahydrodimethanonaphthalene)

IT **16456-81-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for epoxidn. and rearrangement of hexamethyl-Dewar benzene and hexahydrodimethanonaphthalene)

L1 ANSWER 284 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:438968 HCAPLUS

DOCUMENT NUMBER: 107:38968

TITLE: Transient formation of N-alkylhemins during hemin-catalyzed epoxidation of norbornene. Evidence concerning the mechanism of epoxidation

AUTHOR(S): Traylor, Teddy G.; Nakano, Taku; Miksztal, Andrew R.; Dunlap, Beth E.

CORPORATE SOURCE: Dep. Chem., Univ. California, San Diego, La Jolla, CA, 92093, USA

SOURCE: Journal of the American Chemical Society (1987), 109(12), 3625-32

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 107:38968

AB In hemin-catalyzed epoxidn. of norbornene and other alkenes, the hemin is converted to N-alkylhemin by addn. to the alkene. This transient species is a catalyst for epoxidn. but is not an intermediate. As the oxidant disappears, the N-alkylhemin reverts to the original hemin. Proposed mechanisms that require the accumulation of other transients can be excluded because the N-alkylhemin is the only species that accumulates.

IT **Epoxidation catalysts**

(hemin, for olefins)

IT **16456-81-8** 19570-49-1 52155-50-7 64413-43-0 91042-27-2

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for epoxidn. of olefins)

L1 ANSWER 285 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:195961 HCAPLUS

DOCUMENT NUMBER: 106:195961

TITLE: Coordination-immobilized hemin - catalyst for mild oxidation of hydrocarbons

AUTHOR(S): Belyakova, L. A.; Kolotusha, T. P.; Serova, T. E.; Tertykh, V. A.; Yatsimirskii, K. B.

CORPORATE SOURCE: Inst. Fiz. Khim. im. Pisarzhevskogo, Kiev, USSR

SOURCE: Doklady Akademii Nauk SSSR (1986), 288(6), 1358-61

[Chem.]
CODEN: DANKAS; ISSN: 0002-3264

DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Samples of the title catalyst contg. hemin bound on 3 organosilicas (SiO₂)_n(CH₂)₃NHR (R = H, R1, R2) were used in liq.-phase oxidn. of cumene. Catalytic activity measured by O₂ absorption, was higher in samples contg. imidazole groups than in those with aminopropyl groups.

IT **Oxidation catalysts**
(coordinatively bound hemin on silica, for cumene)

IT **16009-13-5D**, Hemin, silica-bound
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for cumene oxidn.)

L1 ANSWER 286 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1987:195687 HCAPLUS
DOCUMENT NUMBER: 106:195687
TITLE: Selectivity-electronic structure correlation in the liquid phase cooxidation of aldehydes and olefins in the presence of cobalt porphyrins as catalyst
AUTHOR(S): Apostol, I.; Haber, J.; Mlodnicka, T.; Poltowicz, J.
CORPORATE SOURCE: Inst. Catal. Surf. Chem., Pol. Acad. Sci., Krakow, Pol.
SOURCE: Int. Congr. Catal., [Proc.], 8th (1985), Meeting Date 1984, Volume 4, IV497-IV506. Verlag Chemie: Weinheim, Fed. Rep. Ger.
CODEN: 55DBAG

DOCUMENT TYPE: Conference
LANGUAGE: English

AB Cooxidn. of PhCHO with propylene (I) in the presence of cobalt tetraphenylporphyrin (II) involves formation of II cation-radical complexes with PhCHO and BzOOH (formed from PhCHO), which then react with I giving propylene oxide and BzO.cntdot., which decomp. giving CO₂. The introduction of electron-donating or -withdrawing groups into porphyrin and also dielec. properties of solvents have profound effect on the formation of porphyrin complexes and thus affect the induction period of O consumption by the PhCHO-I-porphyrin system.

IT **Oxidation catalysts**
(cobalt porphyrins, for benzaldehyde-propylene)

IT **14172-90-8** 19414-65-4 28903-71-1 55915-17-8 108175-63-9
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, in cooxidn. of benzaldehyde with propylene)

L1 ANSWER 287 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1987:176822 HCAPLUS
DOCUMENT NUMBER: 106:176822
TITLE: Catalytic activity of hemine peptides in liquid-phase oxidation
AUTHOR(S): Trusov, P. Yu.; Fung Ti Shi; Astanina, A. N.; Rudenko, A. P.; Luzgina, V. N.; Filippovich, E. I.; Evstigneeva, R. P.
CORPORATE SOURCE: Mosk. Gos. Univ., Moscow, USSR
SOURCE: Zhurnal Fizicheskoi Khimii (1986), 60(5), 1256-9
CODEN: ZFKHA9; ISSN: 0044-4537

DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Oxidn. of cysteine or H₂S with O₂ was studied in the liq. phase using

model cytochromes (hemin b and c, heme nonapeptide fragment of cytochrome c) and Hbs [hemin-Leu-His-OMe], hemin-Val-Phe-OMe, or hemin-Lys(COCF3)-Ala-Ala-OMe] as catalysts.

IT **Oxidation catalysts**

(heme peptides, for cysteine or hydrogen sulfide)

IT 553-12-8 7720-78-7, Ferrous sulfate **16009-13-5** 26219-53-4,
Hemin c 64479-33-0 74855-95-1 84052-64-2 84085-98-3

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of cysteine or hydrogen sulfide)

L1 ANSWER 288 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:155715 HCAPLUS

DOCUMENT NUMBER: 106:155715

TITLE: Meso-substituents of a macrocycle and catalytic activity of metal porphyrins

AUTHOR(S): Samokhvalova, A. I.; Solov'eva, A. B.; Chugreev, A. L.; Misurkin, I. A.; Karmilova, L. V.; Enikolopyan, N. S.

CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR

SOURCE: Doklady Akademii Nauk SSSR (1986), 289(3), 633-6 [Chem.]

CODEN: DANKAS; ISSN: 0002-3264

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Kinetic results for the oxidn. of cholesterol (I) and 1-hexene (II) with Mn porphyrin catalysts indicated that a ternary olefin-catalyst-O₂ complex was an intermediate. In the case of I, the rate-detg. step in forming this intermediate complex was the activation of O₂ by the catalyst. In the case of II, the rate-detg. step was coordination of II to Mn.

IT **Oxidation catalysts**

(manganese porphyrins, for cholesterol and hexene)

IT **Porphyrins**

RL: **CAT (Catalyst use)**; USES (Uses)

(metal complexes, catalysts, for oxidn. of cholesterol and hexene)

IT **14172-90-8 16456-81-8** 58356-65-3 62769-24-8
90580-00-0 107546-87-2 107546-88-3 107546-89-4 107567-49-7

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of cholesterol and hexene)

L1 ANSWER 289 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:140082 HCAPLUS

DOCUMENT NUMBER: 106:140082

TITLE: Catalytic oxidation of naphthol by metalloporphyrins

AUTHOR(S): Xi, Zuwei; Liu, Weizhen; Cao, Guoying; Du, Wen; Huang, Jiabi; Cai, Kunzhi; Guo, Hefu

CORPORATE SOURCE: Dalian Inst. Chem. Phys., Acad. Sin., Dalian, Peop. Rep. China

SOURCE: Cuihua Xuebao (1986), 7(4), 357-63

CODEN: THHPD3; ISSN: 0253-9837

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Effects of Co-Schiff base complex and Co-tetraphenylporphyrin complex (I) [14172-90-8] on the oxidn. of different phenols in CHCl₃ were studied. Oxidn. of .alpha.-naphthol (II) [90-15-3] using I catalyst gave .alpha.-naphthoquinone [130-15-4] as main product. VO and Cu porphyrins could not be used as catalysts for oxidn. of II. The catalytic activity

of the para-substitution group of I was OMe > H > CO₂H. The oxidn. rate of II increased with increasing catalyst concn. and decreased with increasing II concn. and temp. A mechanism of II oxidn. by I was proposed.

IT **Oxidation catalysts**

(cobalt tetraphenylporphyrin, for naphthol)

IT 14167-18-1 14172-90-8 19414-69-8 28903-71-1

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of naphthol)

L1 ANSWER 290 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:49478 HCAPLUS

DOCUMENT NUMBER: 106:49478

TITLE: The kinetics and mechanisms of oxygen transfer in the reaction of p-cyano-N,N-dimethylaniline N-oxide with metalloporphyrin salts. 4. Catalysis by meso-[tetrakis(2,6-dimethylphenyl)porphinato]iron(III) chloride

AUTHOR(S): Woon, T. C.; Dicken, C. Michael; Bruice, Thomas C.

CORPORATE SOURCE: Dep. Chem., Univ. California, Santa Barbara, CA, 93106, USA

SOURCE: Journal of the American Chemical Society (1986), 108(25), 7990-5

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The title porphyrin (I) catalyzes the conversion of p-NCC6H₄N(O)Me₂ (II) to 53% p-NCC6H₄NMe₂ (III), 24% p-NCC6H₄NHMe, 8% p-NCC6H₄NMeCHO, 3% p-NCC6H₄NH₂, 7% p-(p-NCC6H₄NMeNMe)C₆H₄CN, and 5% p-(p-NCC6H₄NMeCH₂NH)C₆H₄CN and CH₂O. Kinetic and other evidence show that the reaction involves equil. ligation of II to the Fe(III) porphyrin followed by rate-detg. O transfer to give III and Fe(IV)-oxo porphyrin .pi.-cation radical (IV) as initial products; all other cyanophenyl-contg. products and CH₂O were derived from the stepwise oxidn. of III by IV. The oxidn. potentials of meso-[tetrakis(2,6-dimethylphenyl)porphinato]iron(III) methoxide are comparable to the potential of its tetra-Ph analog. The rate const. for the reaction of II with I is 3.3 fold smaller than that for the reaction of meso-(tetraphenylporphinato)iron(III) chloride (V) although the product yields are comparable. The oxidn. or epoxidn. of added substrates are not rate-detg. The epoxidn. reactions using II with I occur in much higher yield (80-100%) than when using V as the catalyst.

IT **Epoxidation catalysts**

(metalloporphyrin salts, for alkenes by cyano(dimethyl)aniline oxide)

IT 16456-81-8 29189-59-1 98715-83-4 105164-56-5

RL: **CAT (Catalyst use)**; USES (Uses)

(deoxidn. catalyst, for cyano(dimethyl)aniline oxide)

L1 ANSWER 291 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1986:614487 HCAPLUS

DOCUMENT NUMBER: 105:214487

TITLE: Elucidation of chemical interaction in the macrocyclic metal complex-metal oxide systems and application of their functions

AUTHOR(S): Mochida, Isao

CORPORATE SOURCE: Res. Inst. Ind. Sci., Kyushu Univ., Fukuoka, 812, Japan

SOURCE: Kenkyu Hokoku - Asahi Garasu Kogyo Gijutsu Shoreikai

(1985), 47, 243-9

CODEN: AGKGAA; ISSN: 0365-2599

DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB The catalytic activity and chem. interactions of Co Ph₄ porphyrin complex (COTPP) supported on TiO₂ were studied. It showed remarkable catalytic activities in the redn. of NO with CO and in the oxidn. of CO with O₂ even at -79.degree.. Its activity was 6 times larger than that of a com. Hopcalite catalyst. Evacuation at 250.degree. caused dimerization of COTPP and modification of the surface structure of TiO₂ both of which enhanced the electron transfer from TiO₂ to the complex and enabled both the complex and the oxide to participate in the reaction. SiO₂ and NiO also showed remarkable catalytic activity with this complex.

IT **Oxidation catalysts**

(cobalt tetraphenylporphyrin-titania, for carbon monoxide)

IT **14172-90-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts from titania and, for redn. of nitric oxide by carbon monoxide and for oxidn. of carbon monoxide, activity in relation to electron transfer in)

L1 ANSWER 292 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1986:442569 HCAPLUS

DOCUMENT NUMBER: 105:42569

TITLE: Metalloporphyrin-catalyzed epoxidation of terminal aliphatic olefins with hypochlorite salts or potassium hydrogen persulfate

AUTHOR(S): De Poorter, Bertha; Meunier, Bernard

CORPORATE SOURCE: Lab. Chim. Coord., Toulouse, 31400, Fr.

SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1972-1999) (1985), (11), 1735-40

CODEN: JCPKBH; ISSN: 0300-9580

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 105:42569

AB Substitution of tetraphenylporphyrinatomanganese(III) complexes on the peripheral Ph groups makes these compds. suitable as catalysts for the epoxidn. of terminal olefins with monooxygen donors such as NaOCl, LiOCl, and KHSO₅ in a biphasic system.

IT **Epoxidation catalysts**

(metalloporphyrins, for alkenes by hypochlorite salts or potassium hydrogen persulfate)

IT **16456-81-8** 28110-70-5 58356-65-3 60250-84-2 79968-43-7

85939-49-7 91463-17-1 91535-98-7 91584-52-0 97330-51-3

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for epoxidn. of alkenes by hypochlorite salts or potassium hydrogen persulfate)

L1 ANSWER 293 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1986:405999 HCAPLUS

DOCUMENT NUMBER: 105:5999

TITLE: Mechanisms of hemin-catalyzed oxidations: rearrangements during the epoxidation of trans-cyclooctene

AUTHOR(S): Traylor, Teddy G.; Iamamoto, Yassuko; Nakano, Taku

CORPORATE SOURCE: Dep. Chem., Univ. California, San Diego, La Jolla, CA,

92093, USA
SOURCE: Journal of the American Chemical Society (1986),
108(12), 3529-31
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 105:5999
AB The epoxidn. of trans-cyclooctene (I) using 2,4-dimethyliodosylbenzene as oxidant and tetraphenylporphinatoiron(III) chloride as catalyst afforded 40% trans-epoxide, 2% cis-epoxide (II), 10% cycloheptanecarboxaldehyde and 1% cyclooctanone. Epoxidn. of cis-cyclooctene under the same conditions gave only II. These results are interpreted in terms of an electron-transfer mechanism for oxidn. of I and imply a similar process for other alkenes.
IT **Epoxidation catalysts**
Oxidation catalysts
(hemin, for cyclooctene)
IT **16009-13-5**
RL: **CAT (Catalyst use); USES (Uses)**
(catalysts, for epoxidn. of cyclooctene isomers)

L1 ANSWER 294 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1986:168282 HCAPLUS
DOCUMENT NUMBER: 104:168282
TITLE: Sustained epoxidation of olefins by oxygen donors catalyzed by transition metal-substituted polyoxometalates, oxidatively resistant inorganic analogs of metalloporphyrins
AUTHOR(S): Hill, Craig L.; Brown, Robert B., Jr.
CORPORATE SOURCE: Dep. Chem., Emory Univ., Atlanta, GA, 30322, USA
SOURCE: Journal of the American Chemical Society (1986),
108(3), 536-8
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 104:168282
AB The transition metal-substituted heteropolytungstates of Cs point group symmetry, (Bu₄N)4H(M)PW₁₁O₃₉ (I, M = transition metal), and in particular those where M = Mn(II) and Co(II), are remarkably effective catalysts for the epoxidn. of olefins using iodosylbenzene or pentafluoriodosylbenzene. I (M = Mn, Co) display many of the mol. attributes of metalloporphyrins that render the latter such effective oxygenation catalysts. The transition metal active sites in I (M = Mn, Co) unlike those in metalloporphyrins, however, reside in a completely inorg. ligand environment contg. only oxidatively stable oxide and d.degree.W(II) atoms. I (M = Mn, Co) catalyzed the oxygenation of olefins more rapidly and with higher selectivity for epoxide formation than metalloporphyrin complexes. The loss of stereochem. obsd. during catalytic epoxidns. by these transition-metal substituted polyoxometalates and the products produced when the epoxidns. are carried out in the presence of O₂ suggest that free radicals are intermediates in these processes. The oxidn. state of the Mn in I (M = Mn) clearly changes during catalytic epoxidn. while the oxidn. state of the Co in I (M = Co) may not. The epoxidns. catalyzed by I (M = Mn, Co) in dramatic contrast to those catalyzed by most metalloporphyrins continue for thousands of turnovers with little or no apparent loss of catalyst activity. Complexes such as I (M = Mn, Co) may offer the stability characteristics of heterogeneous metal oxide catalysts with the

exptl. tractability of metalloporphyrins and other homogeneous oxidn. catalysts with org. ligands.

IT **Epoxidation catalysts**

(transition metal polyoxometalates, for olefins)

IT **16456-81-8** 32195-55-4 58164-61-7 60166-10-1 99810-80-7

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for epoxidn. of olefins by iodosobenzene)

L1 ANSWER 295 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1986:148409 HCAPLUS

DOCUMENT NUMBER: 104:148409

TITLE: Incorporation of dioxygen into the hydroxylated product during the carbon-carbon single bond cleavage of 1,2-bis(p-methoxyphenyl)propane-1,3-diol catalyzed by hemin. A novel model system for the hemoprotein ligninase

AUTHOR(S): Habe, Tsuyoshi; Shimada, Mikio; Okamoto, Tadashi; Panijpan, Bhinyo; Higuchi, Takayoshi

CORPORATE SOURCE: Wood Res. Inst., Kyoto Univ., Kyoto, 611, Japan

SOURCE: Journal of the Chemical Society, Chemical

Communications (1985), (19), 1323-4

CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 104:148409

AB Oxidn. of the lignin model compds. p-MeOC₆H₄CH(OH)CD(C₆H₄OMe-p)CH₂OH at 30.degree. in CHCl₃ in the presence of hemin catalyst, Me₃COOH, and 18O₂ gave p-MeOC₆H₄CD(18OH)CH₂OH, with 83% 18O incorporation, and p-MeOC₆H₄CHO as the initial C.alpha.-C.beta. bond cleavage products.

IT **Oxidation catalysts**

(hemin, for bis(methoxyphenyl)propanediol)

IT **16009-13-5**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxygenation of bis(methoxyphenyl)propanediol)

L1 ANSWER 296 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1986:11084 HCAPLUS

DOCUMENT NUMBER: 104:11084

TITLE: Steric and electronic control of iron porphyrin catalyzed hydrocarbon oxidations

AUTHOR(S): Nappa, Mario J.; Tolman, Chadwick A.

CORPORATE SOURCE: Cent. Res. Dev. Dep., E. I. du Pont de Nemours and Co., Inc., Wilmington, DE, 19898, USA

SOURCE: Inorganic Chemistry (1985), 24(26), 4711-19

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The yields and product distributions in the oxidn. of hydrocarbons (cyclohexane, pentane, octane, methylcyclohexane, tert-butylcyclohexane, and ethylbenzene), with substituted Fe tetraphenylporphyrins and iodosobenzene, are affected by the nature and location of Ph-ring substituents. These substrates were used to measure the activity, regioselectivity, substrate selectivity, and stereoselectivity of these substituted Fe porphyrin catalysts. Higher yields are obsd. with Fe porphyrins having bulky substituents near the Fe center. Kinetics measurements and concn. studies show that these substituents improve lifetimes by hindering catalyst bimol. self-destruction. Higher yields

are also obsd. with electron-withdrawing substituents. A new Fe fluoro-pocket porphyrin shows high activity due to this electronic effect. Substrate and regioselectivity are also influenced by steric and electronic effects of the Fe porphyrin Ph ring substituents. Bulky porphyrins also affect the stereoselectivity at the 2-, 3- and 4-positions in tert-butylcyclohexane oxidn. A mechanism supported by kinetic modeling studies is proposed for the oxidn. reactions.

IT **Oxidation catalysts**

(iron porphyrins, for hydrocarbons)

IT 132-16-1 **16456-81-8** 19496-18-5 23844-93-1 36965-71-6
52155-49-4 52155-50-7 53470-05-6 81245-21-8 98858-68-5
98858-69-6 98858-70-9 98858-71-0 98858-72-1

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of hydrocarbons)

L1 ANSWER 297 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1985:601538 HCAPLUS

DOCUMENT NUMBER: 103:201538

TITLE: Remarkable catalytic activity of cobalt tetraphenylporphyrin modified on a titania for the oxidation of carbon monoxide below room temperature

AUTHOR(S): Mochida, Isao; Iwai, Yasuo; Kamo, Tetsuro; Fujitsu, Hiroshi

CORPORATE SOURCE: Grad. Sch. Eng. Sci., Kyushu Univ., Kasuga, 816, Japan

SOURCE: Journal of Physical Chemistry (1985), 89(25), 5439-42
CODEN: JPCHAX; ISSN: 0022-3654

DOCUMENT TYPE: Journal

LANGUAGE: English

AB CobaltTPP (tetraphenylporphyrin) on TiO₂ (prepd. by TiOSO₄ hydrolysis at 120.degree. with seeds) modified at 250.degree. under vacuum catalytically oxidized CO rapidly with O even at -79.degree.. Its catalytic activity was higher than that of com. Hopcalite. Comparison of its catalytic performance with those of the same catalyst or different TiO₂ supporting catalyst both evacuated at 200.degree. revealed unique features of the present catalyst in terms of its O adsorption, the poisoning of adsorbed O, and the insoly. of the complex in C₆H₆. Both significant structural modification of the complex and its strong interaction with properly dehydrated TiO₂-120s brought about by evacuation at 250.degree. may induce such extraordinary activity.

IT **Oxidation catalysts**

(cobalt tetraphenylporphyrin-titania, for carbon monoxide at lower temp.)

IT **14172-90-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, titania-supported, for oxidn. of carbon monoxide below room temp.)

L1 ANSWER 298 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1985:578984 HCAPLUS

DOCUMENT NUMBER: 103:178984

TITLE: Epoxidation of olefins with potassium hydrogen persulfate catalyzed by metalloporphyrins

AUTHOR(S): De Poorter, Bertha; Meunier, Bernard

CORPORATE SOURCE: Lab. Chim. Coord., Univ. Paul-Sabatier, Toulouse, 31400, Fr.

SOURCE: Nouveau Journal de Chimie (1985), 9(6), 393-4

CODEN: NJCHD4; ISSN: 0398-9836

DOCUMENT TYPE: Journal

LANGUAGE: English

AB KHSO₅ was used as O donor for the epoxidn. of cyclohexene [110-83-8], 1-octene [111-66-0], 5-bromo-1-pentene [1119-51-3], and 5-acetyl-1-pentene [1576-85-8] in the presence of metalloporphyrin catalysts.

IT **Epoxidation catalysts**

(metalloporphyrins, for olefins)

IT **16456-81-8** 28110-70-5 58356-65-3 60250-84-2 79968-43-7
91535-98-7 91584-52-0

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for epoxidn. of olefins in presence of potassium hydrogen persulfate)

L1 ANSWER 299 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1985:226727 HCAPLUS

DOCUMENT NUMBER: 102:226727

TITLE: Hydrated titanium oxide loaded with cobalt-tetraphenyl-porphine as oxidation catalyst for carbon monoxide and hydrogen

PATENT ASSIGNEE(S): Titan Kogyo K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60031827	A2	19850218	JP 1983-140498	19830802
JP 04011258	B4	19920227		

PRIORITY APPLN. INFO.: JP 1983-140498 19830802

AB Metatitanic acid is dried at .ltoreq.300.degree., the hydrated TiO₂ of sp. surface area .gtoreq.170 m²/g is loaded with 1-30% Co-tetraphenylporphine(I), optionally further evacuated at 150-350.degree., and is used for oxidn. of CO and H₂ with NO and of CO with O₂. Thus, metatitanic acid from aq. TiOSO₄ hydrolysis was washed, dried at 120.degree., 10 g TiO₂.xH₂O (241.7 m²/g) was stirred in 500 mL C₆H₆ contg. 0.5 g I overnight, evapd. to dryness to be loaded with 5% I, and evacuated at 250.degree. for 2 h. A 800 mL mixt. of NO 10 and CO 20 torr; CO 5 and O₂ 10; or NO 2 and H₂ 20 was circulated over the 4 g catalyst at 500 mL/min and 100.degree., 0-17.degree., or 100.degree., resp. The NO redn., CO oxidn. after 15 min each, and NO redn. after 45 min were all 100%.

IT **Oxidation catalysts**

(cobalt tetraphenylporphine complex-titania, for carbon monoxide and hydrogen)

IT **14172-90-8**RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, on titania support, for oxidn. of carbon monoxide and hydrogen)

L1 ANSWER 300 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1985:131836 HCAPLUS

DOCUMENT NUMBER: 102:131836

TITLE: In the presence of imidazole, iron- and manganese-porphyrins catalyze the epoxidation of

- alkenes by alkyl hydroperoxides
- AUTHOR(S): Mansuy, Daniel; Battioni, Pierrette; Renaud, Jean Paul
CORPORATE SOURCE: Lab. Chim., Ec. Norm. Super., Paris, 75231, Fr.
SOURCE: Journal of the Chemical Society, Chemical Communications (1984), (19), 1255-7
CODEN: JCCCAT; ISSN: 0022-4936
- DOCUMENT TYPE: Journal
LANGUAGE: English
- AB The epoxidn. of styrene, cyclohexene Me₂C:CH(CH₂)₃Me, and cis- and trans-PhCH:CHPh by cumyl hydroperoxide is catalyzed by M(TPP)Cl (M = Mn, Fe, TPP = tetraphenylporphyrin) in the presence of imidazole. In the case of Mn(TPP)Cl, a transient species characterized by a Soret peak at 426 nm was detected at -37.degree..
- IT **Epoxidation catalysts**
(imidazole-metalloporphyrin, for alkenes by cumyl hydroperoxide)
- IT **16456-81-8** 32195-55-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, with imidazoles, for epoxidn. of alkenes)
- L1 ANSWER 301 OF 344 HCAPLUS COPYRIGHT 2003 ACS
- ACCESSION NUMBER: 1985:112650 HCAPLUS
DOCUMENT NUMBER: 102:112650
TITLE: Oxidation of phenols by molecular oxygen catalyzed by transition metal complexes. Comparison between the activity of various cobalt and manganese complexes and the role of peroxy intermediates
- AUTHOR(S): Frostin-Rio, Maryvonne; Pujol, Daniele;
Bied-Charreton, Claude; Perree-Fauvet, Martine;
Gaudemer, Alain
- CORPORATE SOURCE: Lab. Chim. Coord. Bioorg., Univ. Paris-Sud, Orsay, 91405, Fr.
- SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1984), (9), 1971-9
CODEN: JCPRB4; ISSN: 0300-922X
- DOCUMENT TYPE: Journal
LANGUAGE: English
- AB The rate and selectivity of oxidn. of hindered phenols by O₂ catalyzed by monomeric and polymeric Co-Schiff base complexes, Co and Mn porphyrins, and pyridinecobaloxime were very dependent on catalyst and solvent. Reaction of 2,4,6-(Me₃C)₃C₆H₂OH (I) with Co(dmgh)₂py (II) (dmgh = dimethylglyoximate monoanion) in MeCN under O at room temp. for 4 h gave the novel complex III in 95% yield. Thermal decompn. of III showed its formation from I and II to be reversible; it is converted into 2,6-di-tert-butyl-1,4-benzoquinone only in the presence of a H⁺ source. The corresponding hydroperoxide is a probable intermediate in this reaction as its decompn. in the presence of Co(II) or Mn(III) complexes gave the same final products as the overall oxidns.
- IT **Oxidation catalysts**
(cobalt and manganese complexes, for hindered phenols, kinetics and mechanism with)
- IT **14172-90-8** 15306-22-6D, polystyrene-bound 15391-24-9
23755-16-0 32195-55-4 36451-60-2
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for oxidn. of phenols)
- L1 ANSWER 302 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1985:5435 HCAPLUS
DOCUMENT NUMBER: 102:5435
TITLE: Regioselectivity of olefin oxidation by iodosobenzene catalyzed by metalloporphyrins: control by the catalyst
AUTHOR(S): Mansuy, Daniel; Leclaire, Jacques; Fontecave, Marc; Dansette, Patrick
CORPORATE SOURCE: Lab. Chim., Ec. Norm. Super., Paris, 75231/05, Fr.
SOURCE: Tetrahedron (1984), 40(15), 2847-57
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The regioselectivity of the oxidn. of 6-phenoxy-1-hexene, 1-hexene, and styrene by iodosobenzene in the presence of various Fe-, Mn- or Cr-tetraarylporphyrins was studied. Besides epoxides, known products from such systems, allylic alcs. and aldehydes were formed, the latter not being derived from the corresponding epoxides. The relative importance of these reactions greatly depends upon both the metal and porphyrin constituents of the catalyst. More particularly, the competition between epoxidn. and allylic hydroxylation can be efficiently controlled by nonbonded interactions between the olefin and porphyrin substituents. No hydroxylation of the arom. rings and no oxidative dealkylation of the ether function was detected.

IT **Oxidation catalysts**
(metalloporphyrins, for olefins by iodosobenzene)
IT **16456-81-8** 28110-70-5 32195-55-4
RL: **CAT (Catalyst use);** USES (Uses)
(catalysts, for oxidn. of olefins by iodosobenzene)

L1 ANSWER 303 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1984:617146 HCAPLUS
DOCUMENT NUMBER: 101:217146
TITLE: A composite photocatalyst for oxidation of sulfur dioxide
AUTHOR(S): Langford, C. H.; Saint-Joly, C.; Pelletier, E.; Persaud, L.; Crouch, A.; Arbour, C.
CORPORATE SOURCE: Chem. Dep., Concordia Univ., Montreal, QC, H3G 1M8, Can.
SOURCE: Studies in Surface Science and Catalysis (1984), 19(Catal. Energy Scene), 291-6
CODEN: SSCTDM; ISSN: 0167-2991
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Photoelectrochem. expts. were conducted with Zn tetraphenylporphyrin-coated Sn oxide electrodes. Anatase particles loaded with a small amt. of Pt were coated with polyvinylpyridine-Zn tetraphenylporphyrin. A reversible SnO electrode was obtained by coating from pyridine soln. The composite catalyst apparently operates by photochem. electron transfer from porphyrin to semiconductor support. Efficiency and reversibility depend on photoproduct transport to the site of further reaction (SO₂ oxidn. by oxidized porphyrin). The balancing redn. process occurs at the Pt coating.

IT **Oxidation catalysts**
(photoelectrochem., zinc tetraphenylporphyrin-coated semiconductor oxide electrodes as, for sulfur dioxide)
IT **14074-80-7**
RL: **CAT (Catalyst use);** USES (Uses)

(catalysts, semiconductor oxide electrodes coated with, for photooxidn. of sulfur dioxide)

L1 ANSWER 304 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1984:610269 HCAPLUS

DOCUMENT NUMBER: 101:210269

TITLE: Alkene epoxidation by iodosylbenzene catalyzed by porphyrin and nonporphyrin iron complexes: the importance of the porphyrin ligand in cytochrome P-450 and heme model reactions

AUTHOR(S): Fontecave, Marc; Mansuy, Daniel

CORPORATE SOURCE: Lab. Chim., Ec. Norm. Super., Paris, 75231, Fr.

SOURCE: Journal of the Chemical Society, Chemical Communications (1984), (13), 879-81
CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Epoxidn. of styrene and stilbenes and oxidn. of 1-nonene by PhIO were catalyzed by FeCl₃, Fe(acac)₃, [acac = CH(COMe)₂], and FeLCl (I; L = tetraphenylporphyrinato). The stereospecificity and sensitivity to O of the I-catalyzed reactions were different from those of reactions catalyzed by the other Fe compds.

IT **Epoxidation catalysts**

Oxidation catalysts

(iron compds., for alkenes by iodosylbenzene)

IT 7705-08-0, uses and miscellaneous 14024-18-1 **16456-81-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of alkenes by iodosylbenzene)

L1 ANSWER 305 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1984:540933 HCAPLUS

DOCUMENT NUMBER: 101:140933

TITLE: Photooxidation of sulfur dioxide by a polymer supported porphyrin on platinized titanium dioxide particles

AUTHOR(S): Langford, Cooper H.; Saint Joly, Christine; Pelletier, Emilien; Arbour, Claude

CORPORATE SOURCE: Dep. Chem., Concordia Univ., Montreal, QC, H3G 1M8, Can.

SOURCE: Inorganica Chimica Acta (1984), 87(2), L31-L32
CODEN: ICHAA3; ISSN: 0020-1693

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The prepn. of a photocatalyst from TiO₂ particles loaded with 0.7% Pt and coated with a film of poly(vinylpyridine) supporting Zn tetraphenylporphyrin is described, along with its application for oxidn. of SO₂. A SO₂ satd. dispersion contg. the above catalyst powder 100 mg and H₂O 25 mL was irradiated 12 h with a 1000 W Hg lamp (with IR and UV filtered off). The av. yield of H₂SO₄ was 7.5 mmol. The efficiency of conversion of light to oxidizing power was estd. as 0.07%. This low efficiency of the catalyst is attributed to light scattering effects in the system.

IT **Oxidation catalysts**

(photochem., poly(vinylpyridine)-supported zinc tetraphenylporphyrin on platinized titanium dioxide particles as)

IT **14074-80-7**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, contg. platinized titanium dioxide particles coated with poly(vinylpyridine), activity of, for photooxidn. of sulfur dioxide)

L1 ANSWER 306 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1984:208863 HCAPLUS

DOCUMENT NUMBER: 100:208863

TITLE: Oxidation of N-nitrosodibenzylamine and related compounds by metalloporphyrin-catalyzed model systems for the cytochrome P450 dependent mono-oxygenases
AUTHOR(S): Smith, John R. Lindsay; Nee, Michael W.; Noar, J. Barry; Bruice, Thomas C.

CORPORATE SOURCE: Dep. Chem., Univ. California, Santa Barbara, CA, 93106, USA

SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1972-1999) (1984), (2), 255-60
CODEN: JCPKBH; ISSN: 0300-9580

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 100:208863

AB Oxidn. of (PhCH₂)₂NNO by PhIO, 3-ClC₆H₄C(O)OOH, and Me₃COOH in the presence of tetraphenylporphyrinatoiron(III) chloride and -manganese(III) chloride gave PhCHO and PhCH₂OH. Effects of reaction conditions on product yields and distribution were examd. Kinetic D isotope effects were measured for inter- and intramol. competition for the oxidants. PhIO and Me₃COOH oxidns. are initiated by H-abstraction by the oxidants from the .alpha.-H of the PhCH₂ group. Oxidns. by the peroxy acid systems may proceed by an initial electron transfer.

IT **Oxidation catalysts**

(metalloporphyrins, for nitrosodibenzylamine)

IT **16456-81-8** 32195-55-4

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of nitrosodibenzylamine)

L1 ANSWER 307 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1984:174353 HCAPLUS

DOCUMENT NUMBER: 100:174353

TITLE: Oxygenation of olefins under reductive conditions. Cobalt-catalyzed selective conversion of aromatic olefins to benzylic alcohols by molecular oxygen and tetrahydroborate

AUTHOR(S): Okamoto, Tadashi; Oka, Shinzaburo

CORPORATE SOURCE: Inst. Chem. Res., Kyoto Univ., Uji, 611, Japan

SOURCE: Journal of Organic Chemistry (1984), 49(9), 1589-94
CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A high-yield catalytic conversion of RC₆H₄CR₁:CHR₂ (R = H, 4-Cl, 2-, 4-Me, 4-MeO, 4-Br, 3-O₂N; R₁ = H, Me; R₂ = H, Me, CH₂OH, CH:CH₂, CH₂CH:CH₂, CH₂CH₂CH:CH₂) to benzylic alcs. RC₆H₄CR₁(OH)CH₂R₂ (I) by mol. O₂ and BH₄- was catalyzed by Co(TPP) (TPP = tetraphenylporphyrin). The reaction was regioselective exclusively. Comparison of the product distribution and D incorporation in the catalytic oxygenation of PhCH:CH₂, the stoichiometric oxygenation of alkylcobalt complex PhCHMeCoLR₃ (II; L = pyridine, R₃ = dimethylglyoxime anion) and the decomn. of hydroperoxide PhCHMeOOH (III) indicated III was the primary product. III was formed by the reaction of II with mol. O₂. Co(TPP) catalyzed 3 reactions in the overall catalytic

process: formation of III, decompn. of III to benzylic alc. and aryl ketone, and redn. of the ketone.

IT **Oxidation catalysts**

(cobalt complexes, for arom. olefins to benzylic alcs.)

IT 14167-18-1 **14172-90-8** 23295-32-1 37115-10-9

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. catalyst, for arom. olefin to benzyl alcs.)

IT 132-16-1 301-04-2 7646-79-9, uses and miscellaneous 14241-83-9

16456-81-8 19973-61-6 89556-84-3

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. catalyst, for arom. olefins to benzyl alcs.)

L1 ANSWER 308 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1983:612239 HCAPLUS

DOCUMENT NUMBER: 99:212239

TITLE: Autoxidation of .alpha.-methylbenzylhydrazones

AUTHOR(S): Ohkatsu, Yasukazu; Yoshino, Kenji; Tsuruta, Teiji

CORPORATE SOURCE: Fac. Eng., Kogakuin Univ., Tokyo, 160, Japan

SOURCE: Sekiyu Gakkaishi (1983), 26(4), 272-9

CODEN: SKGSAE; ISSN: 0582-4664

DOCUMENT TYPE: Journal

LANGUAGE: English

AB PhCHMeNHN:CRR1 [R = Me, R1 = Ph (I); R = Et, R1 = Ph (II); R = Me, R1 = Et (III)] were prepd. from PhCHMeNHNH2 and RCOR1 and oxidized with O in the presence of Co tetraphenylporphyrin and Co and Ni [(1R,2R)N,N'-bissalicylidene-1,2-cyclohexanediaminato] complexes as catalysts. Oxidn. susceptibility decreased in the order I > II .mchgt. III. Significant amts. of PhCHMeOH and RCOR1 were formed along with small amts. of EtPh, H2C:CHPh, MeCHPhCHPhMe and PhCMe:NN:CMPh. The oxidn. proceeded according to the conventional autoxidn. mechanism.

IT **Oxidation catalysts**

(aut-, cobalt and nickel salicylidenecyclohexanediaminato and cobalt tetraphenylporphyrin complexes, for .alpha.-methylbenzylhydrazones)

IT **14172-90-8** 30954-65-5 40784-63-2

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for autoxidn. of .alpha.-methylbenzylhydrazone)

L1 ANSWER 309 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1983:521435 HCAPLUS

DOCUMENT NUMBER: 99:121435

TITLE: Catalytic replacement of unactivated alkane carbon-hydrogen bonds with carbon-X bonds (X = nitrogen, oxygen, chlorine, bromine, or iodine). Coupling of intermolecular hydrocarbon activation by MnIIITPPX complexes with phase-transfer catalysis

AUTHOR(S): Hill, Craig L.; Smegal, John A.; Henly, Timothy J.

CORPORATE SOURCE: Dep. Chem., Univ. California, Berkeley, CA, 94720, USA

SOURCE: Journal of Organic Chemistry (1983), 48(19), 3277-81

CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 99:121435

AB The title reaction system is composed of 2 liq. phases and the oxidant PhIO. The alkane substrate, the MnIII TPPX catalyst, and the org. solvent (CH2Cl2, PhCl, or other arom. hydrocarbon) constitute 1 phase, a satd. aq. soln. of the Na salt of the anion to be incorporated into the alkane constitutes the 2nd phase, and the sparingly sol. PhIO constitutes a 3rd

phase. When the 2 liq. phases and PhIO are stirred under an inert atm., both RX and ROH products are produced catalytically based on MnTPP, and in reasonable yield based on PhIO. The MnTPP moiety functions as a catalyst for C-H bond cleavage and for phase transfer of X- from the aq. phase to the org. phase, where the functionalization chem. takes place. ClO- can be used in place of, but is less effective than, PhIO, whereas H2O2, IO4- and S2O82- are ineffective. Product distributions obtained from the oxidn. of cyclohexane, Me3CH, Me2CHCHMe2 and PhCMe3 are most consistent with a product-detg. step involving transfer of X from Mn to a free alkyl-radical intermediate.

IT Catalysts and Catalysis

Oxidation catalysts

(phase-transfer, manganese complexes, for alkane functionalization in presence of iodosobenzene)

IT 14705-63-6 **16456-81-8** 32195-55-4 51455-98-2 55290-32-9
55290-33-0 56413-47-9 58356-65-3 83438-07-7 86549-48-6

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for phase-transfer functionalization of alkanes in presence of iodosobenzene)

L1 ANSWER 310 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1983:504796 HCAPLUS

DOCUMENT NUMBER: 99:104796

TITLE: Conversion of an alkane to a mixture of an alcohol and a ketone

INVENTOR(S): Middleton, Anthony Robert; Smith, David John Harry

PATENT ASSIGNEE(S): British Petroleum Co. PLC, UK

SOURCE: Eur. Pat. Appl., 14 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 79705	A1	19830525	EP 1982-305724	19821028
R: BE, DE, FR, GB, IT, NL				
US 4459427	A	19840710	US 1982-436785	19821026
AU 8289819	A1	19830505	AU 1982-89819	19821027
CA 1215388	A1	19861216	CA 1982-414477	19821029
JP 58085827	A2	19830523	JP 1982-192351	19821101
PRIORITY APPLN. INFO.:			GB 1981-32870	19811031
			GB 1981-32871	19811031

AB Alkanes were oxidized by hydrocarbonyl hydroperoxides using a Fe or Mn square planar complex that had heterocyclic N donor ligands and weakly coordinating, non-coordinating, or no axial ligands, to give alcs. and ketones. Thus cyclohexane was treated with Me3COOH and Fe(tetraphenylporphyrin) to give 18% cyclohexanol and 35% cyclohexanone.

IT **Oxidation catalysts**

(iron or manganese tetraphenylporphyrin or phthalocyanine complexes, using hydroperoxide, for cyclohexane)

IT 132-16-1 12582-61-5 14325-24-7 **16456-81-8** 16591-56-3
31004-82-7 32195-55-4 72895-17-1

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. catalyst, for hydrocarbons with hydroperoxides)

L1 ANSWER 311 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1983:504581 HCAPLUS
DOCUMENT NUMBER: 99:104581
TITLE: Epoxidation reactions catalyzed by iron porphyrins.
Oxygen transfer from iodosylbenzene
AUTHOR(S): Groves, John T.; Nemo, Thomas E.
CORPORATE SOURCE: Dep. Chem., Univ. Michigan, Ann Arbor, MI, 48109, USA
SOURCE: Journal of the American Chemical Society (1983),
105(18), 5786-91
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Epoxidn. of olefins, e.g., cyclohexene, cyclooctene, stilbene,
1,5,9-cyclododecatriene, by PhIO was catalyzed by Fe porphyrins.
cis-Olefins were more reactive than trans-, and the degree of cis/trans
selectivity depended on substitution in the porphyrin periphery.
Reactivity studies suggested that the C:C bond approaches from the side of
the Fe-bound O and parallel to the porphyrin plane. A mechanism involving
formation of and O transfer from a relative Fe-oxo intermediate was
proposed.
IT **Epoxidation catalysts**
(iron porphyrins, for olefins with iodosobenzene)
IT 15741-03-4 **16456-81-8** 52155-50-7 86456-38-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for epoxidn. of olefins with iodosobenzene)

L1 ANSWER 312 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1983:160198 HCAPLUS
DOCUMENT NUMBER: 98:160198
TITLE: Oxidation of sulfide with iodosylarenes catalyzed with
metalloporphyrin chlorides
AUTHOR(S): Ando, Wataru; Tajima, Rieko; Takata, Toshikazu
CORPORATE SOURCE: Dep. Chem., Univ. Tsukuba, Ibaraki, 305, Japan
SOURCE: Tetrahedron Letters (1982), 23(16), 1685-8
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 98:160198
AB Chloro-5,10,15,20-tetraphenylporphyrinatoiron (III) (I) and its Mn analog
(II) catalyzed the oxidn. of R₂S (R = PhCH₂, Bu, Et, Me₃C, Ph),
4-R₁C₆H₄SPh (R₁ = MeO, Me, NO₂), III, and IV by PhIO to give sulfoxides in
70-94% yield. I accelerated the oxidn. better than II, but II permitted a
slightly better yield. With Ph₂S and I, 4-MeOC₆H₄IO was much more
reactive than PhIO.
IT **Oxidation catalysts**
(metalloporphyrins, for sulfides to sulfoxides)
IT **16456-81-8** 32195-55-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for oxidn. of sulfides by iodosobenzene)

L1 ANSWER 313 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1983:114438 HCAPLUS
DOCUMENT NUMBER: 98:114438
TITLE: Catalytic activity of cobalt-tetraphenylporphyrin
supported on titanium dioxide comparable to Hopcalites
for the oxidation of carbon monoxide at room
temperature

AUTHOR(S): Mochida, Isao; Suetsugu, Katsuya; Fujitsu, Hiroshi; Takeshita, Kenjiro
CORPORATE SOURCE: Grad. Sch. Ind. Sci., Kyushu Univ., Kasuga, 816, Japan
SOURCE: Chemistry Letters (1983), (2), 177-80
CODEN: CMLTAG; ISSN: 0366-7022
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Mol. O₂ oxidized CO at 17.degree. over Co-TPP(tetraphenylporphyrin)-TiO₂ at the rate of 5.3 .times. 10⁻³mmol/gcat.min which was comparable to that of a com. Hopcalite, indicating very effective activation of CO on the partially reduced Co ion of the supported complex to attract an O atom from weakly adsorbed mol. O₂.
IT **Oxidation catalysts**
(cobalt tetraphenylporphyrin-titania, for carbon monoxide at room temp.)
IT **14172-90-8**
RL: **CAT (Catalyst use); USES (Uses)**
(catalysts, with titania support, for oxidn. of carbon monoxide at room temp.)

L1 ANSWER 314 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1983:80420 HCAPLUS
DOCUMENT NUMBER: 98:80420
TITLE: Electrochemical oxidation of carbon monoxide with carbon-supported Group VIII metal chelates: mechanistic aspects
AUTHOR(S): Van Baar, J. F.; Van Veen, J. A. R.; Van der Eijk, J. M.; Peters, T. J.; De Wit, N.
CORPORATE SOURCE: K./Shell-Lab., Shell Res. B. V., Amsterdam, Neth.
SOURCE: Electrochimica Acta (1982), 27(9), 1315-19
CODEN: ELCAAV; ISSN: 0013-4686
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The electrochem. oxidn. of CO with C-supported Group VIII transition metal chelates was studied both in acid and in alk. electrolytes. The systems based on Rh and Ir porphyrins are good electrocatalysts in aq. acid solns., whereas in strongly alk. media the Co and Fe counterparts are excellent catalysts as well. By analogy with the behavior of homogeneous catalysts for the H₂O gas shift reaction, it is proposed that the catalytic cycle consists of the following steps: CO adsorption on an isolated metal center; nucleophilic attack by H₂O (acid) or OH⁻ (alk. soln.) on the adsorbed CO mol.; and decarboxylation. The activity of each catalyst, and the mechanism whereby it oxidizes CO, is explained in terms of both the redox properties of the metal center and the CO affinity of the metal ion in various oxidn. states.
IT **Oxidation catalysts**
(electrochem., Group VIII metal complexes, carbon-supported, for carbon monoxide)
IT 132-16-1 **14172-90-8** 16591-56-3 22878-89-3 38856-19-8
61085-06-1 79231-61-1 84667-43-6
RL: **CAT (Catalyst use); USES (Uses)**
(catalysts, carbon-supported, for electrochem. oxidn. of carbon monoxide)

L1 ANSWER 315 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1982:581482 HCAPLUS
DOCUMENT NUMBER: 97:181482

TITLE: Alkane hydroxylation catalyzed by metalloporphyrins: evidence for different active oxygen species with alkylhydroperoxides and iodosobenzene as oxidants
AUTHOR(S): Mansuy, D.; Bartoli, J. F.; Momenteau, M.
CORPORATE SOURCE: Lab. Chim., Ec. Norm. Super., Paris, 75231/05, Fr.
SOURCE: Tetrahedron Letters (1982), 23(27), 2781-4
CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The metalloporphyrin-catalyzed hydroxylation of cyclohexane and n-C₇H₁₆ by cumyl hydroperoxide (I) or PhIO were examd. and compared. Oxidn. of cyclohexane by I gave a .apprx.2:1 ratio of cyclohexanol and cyclohexanone regardless of the nature of the metalloporphyrin catalyst; oxidn. by PhIO showed a marked dependence on the nature of the catalyst. Hydroxylation of n-C₇H₁₆ by PhIO showed marked dependence on the nature of the metalloporphyrin catalyst; the hydroxylation by I was almost independent of the nature of the metal and its environment in the catalysts. The results are discussed in relation to the mechanism of hydroxylation of various substrates by Cytochrome P450.

IT Hydroxylation catalysts

Oxidation catalysts

(metalloporphyrins, for cyclohexane or heptane by cumyl hydroperoxide or iodosobenzene)

IT 16456-81-8 28110-70-5 32195-55-4 60166-10-1 77944-60-6
83460-51-9 83468-52-4

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for oxidn. of alkanes by cumyl hydroperoxide or iodosobenzene)

L1 ANSWER 316 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:581363 HCAPLUS

DOCUMENT NUMBER: 97:181363

TITLE: Model systems for cytochrome P450 dependent mono-oxygenases. Part 1. Oxidation of alkenes and aromatic compounds by tetraphenylporphinatoiron(III) chloride and iodosylbenzene

AUTHOR(S): Lindsay Smith, John R.; Sleath, Paul R.

CORPORATE SOURCE: Dep. Chem., Univ. York, York, YO1 5DD, UK

SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1972-1999) (1982), (8), 1009-15

CODEN: JCPKBH; ISSN: 0300-9580

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Aliph. alkenes, substituted styrenes, cis- and trans-PhCH:CHPh, and arom. hydrocarbons were epoxidized by meso-tetraphenylporphinatoiron(III) chloride and PhIO, a model system for cytochrome P450 dependent monooxygenases. The epoxidns. were stereospecifically syn; cis alkenes were more reactive than trans and electron releasing substituents favored the reaction. For styrenes .rho. was -0.93. Phenanthrene, acenaphthylene, and pyrene were epoxidized in low yield. PhOMe and naphthalene were hydroxylated; the model system did not oxidize C₆H₆; with PhMe side chain oxidn. occurred with no ring hydroxylation. The mechanisms and the nature of the reactive species are discussed.

IT **Oxidation catalysts**

(tetraphenylporphinatoiron chloride, for alkenes and arom. compds. with iodosylbenzene)

IT 16456-81-8

RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for oxidn. of alkenes and arom. compds. by iodosylbenzene)

L1 ANSWER 317 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:581361 HCAPLUS

DOCUMENT NUMBER: 97:181361

TITLE: Asymmetric autoxidation of acetophenone
(.alpha.-methylbenzyl)hydrazone

AUTHOR(S): Ohkatsu, Yasukazu; Yoshino, Kenji; Tsuruta, Teiji

CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan

SOURCE: Sekiyu Gakkaishi (1982), 25(4), 221-7

CODEN: SKGSAE; ISSN: 0582-4664

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 97:181361

AB PhCMe:NNHCHMePh (I) and O₂ at 760 mm Hg gave PhCOMe and PhCHMeOH along with small amts. of PhEt, PhCH:CH₂, (PhCHMe)₂, and PhCMe:NN:CMPh. Tetraphenylporphinatocobalt(II) accelerated the autoxidn. of I. A chiral Co(II) complex catalyzed the autoxidn. of I to give (S)-(-)-I in 10.4% enantiomer excess. The reaction mechanism was discussed.

IT **Oxidation catalysts**

(aut-, cobalt complexes, for acetophenone (.alpha.-methylbenzyl)hydrazone, mechanism and stereochem. with)

IT 14172-90-8 40784-63-2

RL: **CAT (Catalyst use)**; USES (Uses)

(autoxidn. catalysts, for acetophenone (.alpha.-methylbenzyl)hydrazone)

L1 ANSWER 318 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:577721 HCAPLUS

DOCUMENT NUMBER: 97:177721

TITLE: Use of the N-oxide of p-cyano-N,N-dimethylaniline as an "oxygen" donor in a cytochrome P-450 model system

AUTHOR(S): Nee, Michael W.; Bruice, Thomas C.

CORPORATE SOURCE: Dep. Chem., Univ. California, Santa Barbara, CA,
93106, USA

SOURCE: Journal of the American Chemical Society (1982),
104(22), 6123-5

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB p-Cyano-N,N-dimethylaniline N-oxide plus meso-(tetraphenylporphinato)iron(III) chloride is a homogeneous system showing continual catalysis with minimal porphyrin degradn. in amine demethylations, olefin epoxidns., and alkane hydroxylations. Thus, this system acts as a model for the cytochrome P-450 monooxygenase system.

IT Demethylation catalysts

Epoxidation catalysts

Hydroxylation catalysts

Oxidation catalysts

(cyanodimethylaniline oxide-(tetraphenylporphinato)iron(III) as, in cytochrome P 450 monooxygenase model)

IT 16456-81-8

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. catalysts, with cyanodimethylaniline oxide, in cytochrome P 450 monooxygenase model)

L1 ANSWER 319 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:577696 HCAPLUS

DOCUMENT NUMBER: 97:177696

TITLE: Studies on molybdo-oxidase models: role of hemin or flavin for air oxidation of triphenylphosphine by molybdenum(VI) complexes of cysteine-containing peptides

AUTHOR(S): Ueyama, Norikazu; Kamada, Etsuo; Nakamura, Akira

CORPORATE SOURCE: Fac. Sci., Osaka Univ., Toyonaka, 560, Japan

SOURCE: Chemistry Letters (1982), (7), 947-50

CODEN: CMLTAG; ISSN: 0366-7022

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Air oxidn. of triphenylphosphine catalyzed by MoO₂[cysteine-(Cys)-OMe]₂, MoO₂(Cys-OEt)₂, and MoO₂(Cys-Met-OMe)₂ was studied as models of molybdo-oxidase. Addn. of hemin or riboflavin to the systems facilitates their catalytic activity. The redox cycle between Mo(VI) and Mo(V) proceeds smoothly with addn. of the electron-transfer mediators, which rapidly oxidize Mo(V) to Mo(VI).

IT **Oxidation catalysts**

(molybdenum(VI) complexes with cysteine-contg. peptides, for triphenylphosphine, hemin and riboflavin facilitation of)

IT 83-88-5, uses and miscellaneous **16009-13-5**

RL: **CAT (Catalyst use)**; USES (Uses)

(cocatalyst, in oxidn. of triphenylphosphine in presence of molybdenum(VI) complexes with cysteine-contg. peptides)

L1 ANSWER 320 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:471765 HCAPLUS

DOCUMENT NUMBER: 97:71765

TITLE: Study on the selective oxidation of alkanes under mild conditions. Part I. The selective oxidation of cyclohexane catalyzed by metalloporphyrins

AUTHOR(S): Wang, Xianyuan; Zhang, Mengqin; Hong, Huahua; Zha, Guoyang; Li, Guangnian

CORPORATE SOURCE: Chengdu Inst. Org. Chem., Chin. Acad. Sci., Chengdu, Peop. Rep. China

SOURCE: Fundam. Res. Organomet. Chem., Proc. China-Jpn.-U. S. Trilateral Semin. Organomet. Chem., 1st (1982),

Meeting Date 1980, 723-9. Editor(s): Tsutsui, Minoru; Ishii, Yoshio; Huang, Yaozeng. Van Nostrand Reinhold: New York, N. Y.

CODEN: 47ZFA5

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Hemin catalyzes the selective oxidn. of cyclohexane to cyclohexanol and cyclohexenone in the presence of ascorbic acid (reducing agent). Of the metalloporphyrins studied, only Fe tetraphenylporphyrin showed catalytic activity comparable to that of hemin.

IT **Oxidation catalysts**

(metalloporphyrins, for cyclohexane)

IT **16009-13-5 16456-81-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for oxidn. of cyclohexane)

L1 ANSWER 321 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:455050 HCAPLUS

DOCUMENT NUMBER: 97:55050
TITLE: Biomimetic oxidation of organic sulfides with
meso-tetraphenylporphyriniron
chloride/imidazole/hydrogen peroxide
AUTHOR(S): Oae, Shigeru; Watanabe, Yoshihito; Fujimori, Ken
CORPORATE SOURCE: Dep. Chem., Univ. Tsukuba, Ibaraki, 305, Japan
SOURCE: Tetrahedron Letters (1982), 23(11), 1189-92
CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The enzyme model system meso-tetraphenylporphyriniron(III)
chloride-imidazole catalyzed the S-oxygenation and oxidative
S-dealkylation of org. sulfides with H₂O₂. The effect of para
substitution on the rate of sulfoxidn. of PhSMe was studied.
Electron-releasing groups accelerated S-oxidn., and there was good
correlation between kinetics and 1-electron oxidn. potentials of the
corresponding sulfides and with Brown-Okamoto .sigma.+ substituent
consts.; the reaction const., .rho.+, was -0.26. Oxidn. of the
benzothiophene I with this system gave the corresponding trans-sulfoxide
stereoselectivity. Thus, this biomimetic oxidn. showed reasonable
similarity to the enzymic oxidn. with cytochrome P-450.

IT **Oxidation catalysts**
(tetraphenylporphyriniron chloride-imidazole, for org. sulfides)

IT **16456-81-8**
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, imidazole and, for oxidn. of org. sulfides)

L1 ANSWER 322 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:84888 HCAPLUS

DOCUMENT NUMBER: 96:84888

TITLE: Selective oxidation of cyclohexane catalyzed by
metalloporphyrins

AUTHOR(S): Wang, Xianyuan; Zhang, Mengqin; Hong, Huahua; Guo,
Liangwen; Lu, Quanjie; Xiong, Tinghui; Zha, Guoyang;
Li, Guangnian

CORPORATE SOURCE: Chengdu Inst. Org. Chem., Acad. Sin., Chengdu, Peop.
Rep. China

SOURCE: Cuihua Xuebao (1981), 2(4), 323-7

CODEN: THHPD3; ISSN: 0253-9837

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Selective oxidn. of cyclohexane (I) to cyclohexanol and cyclohexanone was
studied in a simulation model of hemin-mol. O-ascorbic acid-I at room
temp. and atm. pressure. The catalytic activity of metalloporphyrins,
e.g., FeRCl (R = tetraphenylporphyrin), CoR, MnRCl, CuR, was compared with
that of natural hemin, which was the most active.

IT **Oxidation catalysts**
(natural hemin and metalloporphyrins, for cyclohexane)

IT **14172-90-8 14172-91-9 16009-13-5 16456-81-8**
32195-55-4
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst, for selective oxidn. of cyclohexane, simulation model for)

L1 ANSWER 323 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1981:577625 HCAPLUS

DOCUMENT NUMBER: 95:177625

TITLE: Study of electrocatalytic activity of some

metalloporphyrins in the oxidation of sulfur dioxide
 AUTHOR(S): Oparin, L. V.; Bochin, V. P.; Berezin, B. D.;
 Golubchikov, O. A.; Shchedrina, M. V.
 CORPORATE SOURCE: USSR
 SOURCE: Vopr. Atom. Nauki i Tekhn. Atom.-vodorod. Energ. i
 Tekhnol., (Moskva) (1981), (2/9), 6-9
 From: Ref. Zh., Khim. 1981, Abstr. No. 17B1490
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 AB Title only translated.
 IT **Oxidation catalysts**
 (electrochem., porphyrin complexes, for sulfur dioxide)
 IT **14172-90-8** 28903-71-1 41283-94-7 58482-09-0
 RL: **CAT (Catalyst use); USES (Uses)**
 (catalyst, for sulfur dioxide electrochem. oxidn. in sulfuric acid)

L1 ANSWER 324 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1981:65319 HCAPLUS
 DOCUMENT NUMBER: 94:65319
 TITLE: Hydroperoxides
 INVENTOR(S): Coltrin, Michael E.; Wu, Yulin
 PATENT ASSIGNEE(S): Phillips Petroleum Co., USA
 SOURCE: U.S., 6 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4202992	A	19800513	US 1978-883018	19780303
US 4269734	A	19810526	US 1980-114923	19800124
PRIORITY APPLN. INFO.:			US 1978-883018	19780303

AB Cyclohexylbenzene hydroperoxide (I) was prepd. by oxidn. of
 cyclohexylbenzene with O in the absence of light and in the presence of a
 Cu or a Ni porphine complex. In a typical run, oxidn. at 120.degree. for
 1.5 h with 200-225 psig initial O pressure using
 .alpha., .beta., .gamma., .delta.-tetraphenylporphinatonickel as a catalyst
 and I as an initiator gave 80.7 mol% selectivity to I and 13.6 mol%
 conversion.
 IT **Oxidation catalysts**
 (nickel or copper porphine complexes, for org. compds. to
 hydroperoxides)
 IT 917-23-7 **14172-90-8** 14172-91-9 14172-92-0 22112-86-3
 25482-27-3 41699-93-8 75279-20-8 75286-28-1
 RL: **CAT (Catalyst use); USES (Uses)**
 (catalysts, for oxidn. of cyclohexylbenzenes to hydroperoxide)

L1 ANSWER 325 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1980:84874 HCAPLUS
 DOCUMENT NUMBER: 92:84874
 TITLE: Electrochemical oxidation of sulfur dioxide on metal
 porphyrins
 AUTHOR(S): Radyushkina, K. A.; Tarasevich, M. R.; Akhundov, E. A.
 CORPORATE SOURCE: Inst. Elektrokhim., Moscow, USSR
 SOURCE: Elektrokhimiya (1979), 15(12), 1884-7

CODEN: ELKKAX; ISSN: 0424-8570

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The possibility of using the phthalocyanines and porphyrins of various metals for activating the anodic oxidn. of SO₂ was studied by detg. the effect of the nature of the central ion and ligand on the rate of electrochem. oxidn. of SO₂ in an acid soln. The measurements were made on films of the org. complexes deposited on pyrographite from a soln. of these compds. in concd. H₂SO₄ or sprayed in a vacuum. The following org. complexes were studied: monomeric phthalocyanines of Fe, Co, Mn, V, Ti and phthalocyanine without the metal; polymeric phthalocyanines of Co, having networks which are linear and of structure developed through SO₂ groups; complexes of Co with tetraphenylporphyrin (CoTPP), Co with tetra(methoxyphenyl)porphyrin (CoTMPP), Co with tetrabenzoporphyrin (CoTBP), and Co with dibenzotetraazannulene (CoTAA). The electrolyte was 1N H₂SO₄ satd. with SO₂. The potentials were all measured relative to a std. H electrode.

IT **Oxidation catalysts**

(electrochem., metal porphyrins, for sulfur dioxide)

IT 132-16-1 574-93-6 574-93-6D, cobalt complexes 2890-37-1 3317-67-7
7440-48-4D, phthalocyanine complexes 13930-88-6 **14172-90-8**
14325-24-7 41283-94-7 58482-09-0

RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. catalysts, electrochem., for sulfur dioxide)

L1 ANSWER 326 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1979:167383 HCAPLUS

DOCUMENT NUMBER: 90:167383

TITLE: Hydroxylation and epoxidation catalyzed by
iron-porphine complexes. Oxygen transfer from
iodosylbenzene

AUTHOR(S): Groves, John T.; Nemo, Thomas E.; Myers, Richard S.

CORPORATE SOURCE: Dep. Chem., Univ. Michigan, Ann Arbor, MI, USA

SOURCE: Journal of the American Chemical Society (1979),
101(4), 1032-3

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Chloro-.alpha.,.beta.,.gamma.,.delta.-tetraphenylporphinatoiron(III) (I) and chlorodimethylferriprotoporphyrin IX catalyze alkane hydroxylation and olefin epoxidn. with PhIO as the oxidant. Thus, cyclohexene gave 55% cyclohexene oxide and 15% cyclohexenol, and cyclohexadiene gave 74% monoepoxide. I-catalyzed oxidn. of cis-stilbene gave cis-stilbene oxide, but trans-stilbene was inert under these conditions. Cyclohexane was oxidized to cyclohexanol. The reaction of chlorodioctylferriprotoporphyrin IX with PhIO gave significant oxidn. of the octyl groups. O transfer occurred preferentially to C-4 and C-5, indicating an intramol. reaction.

IT **Epoxidation catalysts**

Hydroxylation catalysts

(iron-porphine complexes)

IT 15741-03-4 **16456-81-8**RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for hydroxylation and epoxidn. of hydrocarbons with
iodosylbenzene)

L1 ANSWER 327 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1978:61786 HCAPLUS

DOCUMENT NUMBER: 88:61786
TITLE: The liquid-phase oxidation of aldehydes with metal tetra(p-tolyl)porphyrins
AUTHOR(S): Ohkatsu, Yasukazu; Osa, Tetsuo
CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1977), 50(11), 2945-9
CODEN: BCSJA8; ISSN: 0009-2673
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The effects of the nature of the metal of metal porphyrins and of the substituent of the Ph group of the porphyrato plane on their use as catalysts in the autoxidn. of aldehydes was discussed. Increased pKa(BH+), namely, the electron-donating power of solvents, leads to strong coordination of the catalysts, followed by coordination of O. On the other hand, the O which was activated on the porphyrins was stabilized by a solvent with a low pKa(H+); it could not initiate the autoxidn. with ease.
IT **Oxidation catalysts**
(metalloporphyrins, for aldehydes)
IT 14172-90-8 14172-91-9 14172-92-0 19414-65-4 28903-71-1
31004-82-7 52242-05-4 55915-17-8
RL: CAT (Catalyst use); USES (Uses)
(catalyst, for oxidn. of aldehyde)

L1 ANSWER 328 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1977:121087 HCAPLUS
DOCUMENT NUMBER: 86:121087
TITLE: Reactions of indolic compounds with molecular oxygen in the presence of metalloporphyrins
AUTHOR(S): Dufour-Ricroch, M. N.; Gaudemer, Alain
CORPORATE SOURCE: Lab. Chim. Coord. Bioorg., Univ. Paris-Sud, Orsay, Fr.
SOURCE: Tetrahedron Letters (1976), (45), 4079-82
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: French
AB Oxidn. of indoles in the presence of Co and Cu porphyrins gave ketoamides. E.g., oxidn. of 3-methyl-1H-indole gave 30-80% MeCOC6H4NHCHO-2. The oxidn. involves chain autoxidn. initiated by decompn. by the metalloporphyrins of 3-hydroperoxy-3H-indoles which are present in trace amts. Decompn. by the metalloporphyrins gives oxy or peroxy radicals.
IT **Oxidation catalysts**
Ring cleavage catalysts
(metalloporphyrins, for indoles)
IT 14172-90-8 14172-91-9 14172-92-0 15892-11-2
RL: CAT (Catalyst use); USES (Uses)
(catalyst, for oxidn. of indoles)

L1 ANSWER 329 OF 344 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1977:120421 HCAPLUS
DOCUMENT NUMBER: 86:120421
TITLE: Oxidation of acetaldehyde catalyzed by cobalt(II) tetraphenylporphyrin
AUTHOR(S): Tezuka, Meguru; Sekiguchi, Osamu; Ohkatsu, Yasukazu; Osa, Tetuo
CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1976),

49(10), 2765-9

CODEN: BCSJA8; ISSN: 0009-2673

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Co(II) tetraphenylporphyrins catalyzed the autoxidn. of acetaldehyde giving peracetic acid quantitatively. The para-substituents of phenyl groups of tetraphenylporphyrin influenced the catalytic activity, Co(II) tetra(p-methylphenyl)porphyrin being remarkably active. Added base gave rise to a max. rate of oxidn. The rate equation was detd. exptl. From the results of kinetics and ESR study, it was concluded that an O mol. activated through the electron transfer from a Co(II) ion abstracted H of acetaldehyde to initiate the autoxidn.

IT **Oxidation catalysts**

(aut-, cobalt tetraphenylporphyrins, for acetaldehyde)

IT **14172-90-8** 19414-65-4 28903-71-1 55915-17-8RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of acetaldehyde)

L1 ANSWER 330 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1976:164608 HCAPLUS

DOCUMENT NUMBER: 84:164608

TITLE: 3-Methyl-2,4-pentadien-1-al and/or
4-methyl-5,6-dihydro-.alpha.-pyron

INVENTOR(S): Oka, Masaya; Fujiwara, Yuzuru; Itoi, Kazuo

PATENT ASSIGNEE(S): Kuraray Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 50151810	A2	19751206	JP 1974-60640	19740529
JP 60021987	B4	19850530		

PRIORITY APPLN. INFO.: JP 1974-60640 19740529

AB CH2:CHCMe:CHCHO (I) and(or) 4-methyl-5,6-dihydro-.alpha.-pyrone (II) were prepd. by liq. phase reaction of 4-methyl-5,6-dihydro-.alpha.-pyran (III) with mol. O in the presence of transition metal salts or complexes. Thus, 0.7-1.0 l./min O was introduced into a mixt. of 294 g III and 1 g tetraphenylporphyrin Co complex 90 min at 2-35.degree. to give 82 g unreacted III, 75 g I, and 125 g II.

IT **Oxidation catalysts**

(cobalt porphyrin complexes)

IT **14172-90-8**RL: **CAT (Catalyst use)**; USES (Uses)

(oxidn. catalyst, for dihydropyrans with oxygen)

L1 ANSWER 331 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1975:547298 HCAPLUS

DOCUMENT NUMBER: 83:147298

TITLE: Isopropylbenzene hydroperoxides

INVENTOR(S): Oka, Masanari; Nakamura, Michihiro; Fujisawa, Yuzuru

PATENT ASSIGNEE(S): Kuraray Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 50037741	A2	19750408	JP 1973-91191	19730813

PRIORITY APPLN. INFO.: JP 1973-91191 19730813

AB Peroxides (I; R = alkyl except iso-Pr, OH, alkoxy, or halo; 1 .gtoreq.0, m .gtoreq.1, 1 + m .ltoreq.6, 1 .ltoreq.n.litoreq.m), useful as oxidizing agents or polymn. initiators, were prepd. by oxidn. of the corresponding benzene derivs., R1C6H6-(1+m)(CHMe2)m, with mol. O in the presence of an org. Co complex in which Co is coordinated with .gtoreq.4 N atoms. Thus, to a stirring mixt. of 10.0 g cumene and 0.01 g tetraphenylporphyrin Co complex (II) was fed O at 70.degree. for 240 min to give 30.7% PhCMe2OOH, 1.69% PhCMe2OH, and 0.11% AcPh. Similar results were obtained with Co complexes of tetra(p-methylphenyl)porphyrin, tetra(p-methoxyphenyl)porphyrin, dimethylglyoximepyridine, phthalocyanine, and o-aminobenzaldehyde ethylenediimine. 4-Isopropylphenol gave 10.15% p-HOC6H4CMe2OOH in 10 hrs using 0.01 g II. P-C6H4(CHMe2) (10.0 g) gave 4-Me2CHC6H4CMe2OOH and p-C6H4(CMe2OOH)2 at 2:1 ratio at 65.degree. for 7 hr using 0.13 g II (74.69% conversion). Oxidn. of p-MeC6H4CHMe2 (10 g) in the presence of 0.007 g II and NaOH (0.025 g of 20.0 wt.% soln.) at 65.degree. for 5 hrs gave 43.92% p-MeC6H4CMe2OOH, 3.31% p-MeC6H4CMe2OH, and 0.61% p-MeC6H4Ac. Addn. of a peroxide-stabilizer such as NaOH or Na2CO3 increased the conversion of the starting substance without deactivation of the catalyst.

IT **Peroxidation catalysts**
 (hydro-, porphyrin cobalt complex, for cumene derivs.)

IT **14172-90-8**
 RL: **CAT (Catalyst use); USES (Uses)**
 (catalysts, for hydroperoxidn. of cumene derivs.)

L1 ANSWER 332 OF 344 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1975:65919 HCAPLUS
 DOCUMENT NUMBER: 82:65919
 TITLE: N4 chelates as catalysts in fuel cells
 AUTHOR(S): Jahnke, H.; Schoenborn, M.; Zimmermann, G.
 CORPORATE SOURCE: .Forschungszent., Robert Bosch. G.m.b.H., Gerlingen, Fed. Rep. Ger.
 SOURCE: Katal. Phthalocyaninen, Symp. (1973), Meeting Date 1972, 71-89. Editor(s): Kropf, Heinz; Steinbach, Friedrich. Thieme: Stuttgart, Ger.
 CODEN: 29LCAK

DOCUMENT TYPE: Conference
 LANGUAGE: German

AB Catalysts for the cathodic redn. of O2 [7782-44-7] are the N4-chelates of phthalocyanine, tetradithiacyclohexenotetraazaporphyrin, dibenzotetraazaannulen (TAA), and tetraphenylporphyrin. Other compds. studied were chelates of tetraazaphthalocyanine, which contains 4 pyridine rings in place of the 4 benzene rings of phthalocyanine. The above substances were mixed with C in a 1:1 wt. ratio. The effect of the central atom (Co, Cu, Fe, Ni) on the O activity was also studied for the monomeric phthalocyanine and tetraazaannulen catalysts. The effect of various org. structures with Co as the central atom on the O activity was investigated, as well as the effect of substituents on the benzene rings.

The activity of various catalysts for the cathodic redn. of O in H₂SO₄, the resistance (to chem. attack) of chelate catalysts, and the use of Co TAA as a catalyst for anodic reactions involving various fuels were also studied.

IT **Oxidation catalysts**

(electrochem., carbon with N4-chelates)

IT 132-16-1 147-14-8 3317-67-7 7440-06-4, uses and miscellaneous
14055-02-8 **14172-90-8** 14172-91-9 14172-92-0 16591-56-3
39251-81-5 41283-94-7 41283-96-9 50792-65-9 54398-41-3
54398-42-4 54398-43-5 54398-44-6 54579-06-5 54579-07-6
54579-08-7 54597-85-2

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for cathodic redn. of oxygen in fuel cells)

L1 ANSWER 333 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1974:463195 HCAPLUS

DOCUMENT NUMBER: 81:63195

TITLE: Catalysis of autoxidation by metalloporphyrins

AUTHOR(S): Paulson, Donald R.; Ullman, Rudiger; Sloane, Richard B.; Closs, Gerhard L.

CORPORATE SOURCE: Dep. Chem., Calif. State Univ., Los Angeles, CA, USA

SOURCE: Journal of the Chemical Society, Chemical

Communications (1974), (5), 186-7

CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Radical autoxidn. of olefins and Tetralin at 25.degree. was catalyzed by Fe(III) meso-tetraphenylporphyrin (TPP) chloride and [Fe (III) (TPP)]₂O. Reaction times were 8-24 hr.

IT **Oxidation catalysts**

(aut-, iron porphyrins for olefins)

IT **14187-12-3** 16591-56-3 34830-12-1

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for autoxidn. of olefins)

L1 ANSWER 334 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1974:430080 HCAPLUS

DOCUMENT NUMBER: 81:30080

TITLE: Heterogeneous and homogeneous catalysis by substituted cobalt tetraphenylporphyrins, and correlations with ir spectra

AUTHOR(S): Bar-Ilan, A.; Manassen, J.

CORPORATE SOURCE: Dep. Plast. Res., Weizmann Inst. Sci., Rehovot, Israel

SOURCE: Journal of Catalysis (1974), 33(1), 68-73

CODEN: JCTLA5; ISSN: 0021-9517

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The catalytic activity of Co tetraphenylporphyrin is measured as a function of substituents on the phenyl ring. The model reaction is the oxidative dehydrogenation of 1,4-cyclohexadiene using PhNO₂ as the oxidant. Catalytic activity is measured heterogeneously as well as homogeneously under the same conditions of temperature and pressure. Infrared frequencies of a specific metal-dependent deformation absorption are measured in solution as well as the solid phase. A smooth correlation is shown to exist between catalytic activity, homogeneous as well as heterogeneous, and infrared frequency, measured in solution. No such correlation exists with ir frequency measured in the solid state. This is

explained by conformation differences of the tetraphenylporphyrin molecule in solution and in the solid state. The causes of the similarities in catalytic behavior between the homogeneous and the heterogeneous system are discussed.

IT **Aromatization catalysts**

(cobalt tetraphenyl porphyrin deriv. complexes, ir spectra in relation to activity of)

IT 1914-65-4 **14172-90-8** 28903-71-1 52242-01-0 52242-02-1
52242-03-2 52242-04-3 52242-05-4 52242-06-5 52325-22-1

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for aromatization of cyclohexadiene by nitrobenzene)

L1 ANSWER 335 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1972:544214 HCAPLUS

DOCUMENT NUMBER: 77:144214

TITLE: Electrocatalytic chemistry of the transition metal complexes. II. Dehydrogenation of cyclohexene catalyzed by the electroreduced cobalt complex of .alpha.,.beta.,.gamma.,.delta.-tetraphenylporphine
Kageyama, Hironori; Hidai, Masanobu; Uchida, Yasuzo
CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1972), 45(9), 2898-902
CODEN: BCSJA8; ISSN: 0009-2673

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The metal complexes of .alpha.,.beta.,.gamma.,.delta.-tetraphenylporphine (M(TPP), M = Co(II), Ni(II), Fe(III)Cl, Pd(II), Pt(II), Cu(II), Mn(III)Cl, and V(IV)O) were electrolyzed at -2.0 V vs. Ag wire in the presence of cyclohexene under N atm. The Co complex only had the catalytic activity of dehydrogenating cyclohexene to 1,3- and 1,4-cyclohexadiene and benzene. With the use of DMF, dioxane, and hexamethyl-phosphoric triamide as solvent, cyclohexadienes were produced, and with that of benzonitrile, and dimethyl sulfoxide, benzene was produced and cyclohexadienes were scarcely produced at all. In all cases, the current efficiency of the products was much higher than 100%, indicating that the dehydrogenation reaction is catalytic. The compn. of the products also varied with the reaction temp. When EtOH was added to the reaction soln., the amount of cyclohexadienes increased with benzonitrile used as solvent. The ESR spectrum observed at g = 2.003 under electrolysis at the 2nd-wave potential is due to the anion radical of Co(I) tetraphenylporphine. From polarog. data and other expts., the species is considered to be an intermediate for dehydrogenation of cyclohexene. The active sites for dehydrogenation are considered to be both the central metal atom and the conjugated ring.

IT **Dehydrogenation catalysts**

(cobalt tetraphenylporphine complexes, for cyclohexene, electrochem.)

IT **14172-90-8**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for electrochem. dehydrogenation of cyclohexene)

L1 ANSWER 336 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1971:430187 HCAPLUS

DOCUMENT NUMBER: 75:30187

TITLE: Catalytic influence of hemin and hemoprotein on the oxidation of polyenoic acids

AUTHOR(S): Kaufman, H. P.; Schiller, H.

CORPORATE SOURCE: Bundesanst. Fettforsch., Muenster, Fed. Rep. Ger.

SOURCE: Fette, Seifen, Anstrichmittel (1971), 73(4), 209-16
CODEN: FSASAX; ISSN: 0015-038X

DOCUMENT TYPE: Journal

LANGUAGE: German

AB Hemin and hemoproteins catalyze the oxidn. of linoleic acid in alk. soln. The colloidal state of the linoleic acid causes deviations from ideal behavior. In the neutral region, the catalytic reaction proceeds as a first-order reaction with reference to the surface concn. of linoleic acid. Product inhibition occurs and the reaction is not specific for cis or trans double bonds. Hemin is ineffective in the catalytic oxidn. of conjugated acids and thus it was assumed that the reaction is not of the chain type but that an electromeric effect is involved in which the double bonds of linoleic acid become conjugated and thus add O.

IT **Oxidation catalysts**

(hemin and hemoproteins, for linoleic acid)

IT **15489-47-1** 15632-20-9 21007-21-6 21007-37-4

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of linoleic acid)

L1 ANSWER 337 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1970:431579 HCAPLUS

DOCUMENT NUMBER: 73:31579

TITLE: Catalytic activity of iron(III)-centered catalysts.
Role of dimerization in the catalytic action of ferrihemes

AUTHOR(S): Brown, Stanley Beames; Dean, T. C.; Jones, Peter

CORPORATE SOURCE: Dep. Phys. Chem., Univ. Newcastle upon Tyne, Newcastle upon Tyne, UK

SOURCE: Biochemical Journal (1970), 117(4), 741-4

CODEN: BIJOAK; ISSN: 0264-6021

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The specific stoichiometric catalytic activity of deuterioferriheme is 10-100-fold greater than that for protoferriheme, depending on pH. It is suggested that the difference in activity may be related to quant. differences in the extent of dimerization in aq. solns. of proto- and deuterioferriheme (Brown, Dean & Jones, 1970). A quant. comparison of the kinetic and equil. data implies that the catalytic activities of ferrihemes are detd. by the proportion of monomer present. The sp. activity of ferriheme monomer calcd. varies inversely with H⁺ ion concn. and attains a value equal to the maximal activity of catalase at pH >pK_a(H₂O₂). A comparison of catalytic behavior in the series of Fe(III)-centered catalysts aqua-Fe(III) ion, ferriheme monomer and catalase suggests that the unique feature of catalase action resides in the pH-independence of the reaction.

IT **Oxidation catalysts**

(per-, ferrihemes, for peroxidase, dimerization and pH effect on)

IT **15489-47-1** 21007-21-6

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for peroxidation, dimerization and pH effect on)

L1 ANSWER 338 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1970:104335 HCAPLUS

DOCUMENT NUMBER: 72:104335

TITLE: Metal complexes of phthalocyanine and .alpha.,.beta.,.gamma.,.delta.-tetraphenyl porphyrin as heterogeneous catalysts in oxidative

dehydrogenation. Correlation between catalytic activity and redox potential
AUTHOR(S): Manassen, Joost; Bar-Ilan, Amiram
CORPORATE SOURCE: Weizmann Inst. Sci., Rehovoth, Israel
SOURCE: Journal of Catalysis (1970), 17(1), 86-92
CODEN: JCTLA5; ISSN: 0021-9517

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The catalytic activity of tetraphenylporphyrin and phthalocyanine complexes for the heterogeneous dehydrogenation of cyclohexadiene in the gas phase, using nitrobenzene as the oxidizing agent, was measured. A general correlation of catalytic activity with polarographically measured 1st oxidation potentials was found. By controlled potential electrolysis, coulometry, and EPR measurements, the mode of oxidn. of these complexes in soln. was ascertained. The 1st oxidn. of Fe²⁺ and Co²⁺ tetraphenylporphyrin appeared to be at the central metal atom, while the Zn²⁺ and Cu²⁺ complexes gave ligand oxidn. For the Ni²⁺ complex the potentials for central metal atom oxidn. and ligand oxidn. were very close together. Therefore, these complexes were capable of 2 kinds of redox processes, either valency change of the central metal atom (Fe²⁺, Co²⁺) or ligand oxidn./redn. (Cu²⁺, Zn²⁺), or both (Ni²⁺). By comparing these principles with results obtained earlier on the catalytic activity of these complexes for cumene oxidn., this difference in redox mechanism could be correlated with the catalytic activity of the complexes in question.

IT **Dehydrogenation catalysts**

(transition metal porphyrin complexes, oxidative, for cyclohexadiene)

IT 132-16-1 147-14-8 3317-67-7 14055-02-8 **14074-80-7**
14172-90-8 14172-91-9 14172-92-0 14320-04-8 14325-24-7
20909-39-1 27636-56-2

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidative dehydrogenation of cyclohexadiene)

L1 ANSWER 339 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1969:95965 HCAPLUS

DOCUMENT NUMBER: 70:95965

TITLE: Homogeneous catalysis of the oxidation of thiols by metal ions

AUTHOR(S): Cullis, Charles F.; Trimm, David L.

CORPORATE SOURCE: Imp. Coll., London, Engl., UK

SOURCE: Discussions of the Faraday Society (1968), No. 46, 144-9

CODEN: DFSOAW; ISSN: 0366-9033

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The oxidn. mechanism of aliphatic and aromatic thiols to disulfides in the presence of metal complexes was studied by measuring the vol. of O absorbed at const. pressure, using an app. described by C. F. Cullis. The metal complexes used were Coen₃Cl₃, cis-[Coen₂Cl₂]Cl, K₃Co(CN)₆, cis-[Co(NH₃)₄(H₂O)Cl]Cl₂, [Co(NH₃)₅CO₃]NO₃, phthalocyanine, hemin, vitamin B₁₂ metal complexes, and Na₂CoEDTA. Metal ions were shown to accept an electron from thiol anions either with or without the formation of a new chem. complex. Ferric complexes were able to accept an electron from thiol anion to produce the ferroporphyrin through an outersphere mechanism. The rate of electron transfer depends on the electron withdrawal and geometric properties of the thiol. Comparison of the rate of electron transfer with the overall rate of oxidn. of ethanethiol showed

that the electron transfer is not the rate-detg. step in oxidn.

IT **Oxidation catalysts**

(metal complexes, for thiols)

IT 147-14-8 3317-67-7 **15489-47-1**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalyst, for oxidn. of ethanethiol)

L1 ANSWER 340 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1968:499846 HCAPLUS

DOCUMENT NUMBER: 69:99846

TITLE: Influence of solubility and structure on the activity of metal complex oxidation catalysts

AUTHOR(S): Swan, C. J.; Trimm, D. L.

CORPORATE SOURCE: Imp. Coll., London, UK

SOURCE: Advances in Chemistry Series (1968), No. 76, 182-92

CODEN: ADCSAJ; ISSN: 0065-2393

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effects of adding various metal ions and metal complexes on the rate of a model oxidn. reaction have been studied in some detail. The model reaction chosen (the oxidn. of EtSH in aq. alk. soln. in the presence of metal-contg. catalysts) involves the transfer of an electron from the thiol anion to the metal. The catalytic activity of additives depends on the soly. of the particular metal complex and varies according to the nature of the ligand attached to the metal ion. In conjunction with different metals, the same ligand can act either as a catalyst or as an inhibitor. The results are discussed in the light of proposed reaction mechanisms.

IT **Chlorophylls, uses and miscellaneous**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of ethanethiol)

IT **Oxidation catalysts**

(transition metal coordination compds. and transition metal salts as, for ethanethiol, soly. in relation to activity of)

IT 68-19-9, uses and miscellaneous 132-16-1 147-14-8 3317-67-7
7487-88-9, uses and miscellaneous 7720-78-7 7758-98-7, uses and
miscellaneous 7786-81-4 10124-43-3 13408-73-6 13455-36-2
13820-78-5 13963-58-1 14024-92-1 14040-32-5 14448-18-1
14640-56-3 **14875-96-8** 15137-09-4 15191-80-7 15244-74-3
15600-46-1

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, for oxidn. of ethanethiol)

L1 ANSWER 341 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1968:408504 HCAPLUS

DOCUMENT NUMBER: 69:8504

TITLE: Effect of heme derivatives upon the stability of fats

AUTHOR(S): Pazlar, Milan; Kocova, Petra; Jirousova, Jana;
Pokorny, Jan

CORPORATE SOURCE: Ustred. Vyzk. Ustav Potravinarskeho Prum., Prague,
Czech.

SOURCE: Prumysl Potravin (1968), 19(4), 190-2

CODEN: PPOTAP; ISSN: 0033-1988

DOCUMENT TYPE: Journal

LANGUAGE: Czech

AB Pork fat was incubated with 10-1000 ppm. of hematin or hemin, and the oxidn. was followed by detn. of the peroxide no., I no., and absorption at

231 m.mu. (double bonds) and at 260-285 m.mu. (carbonyl groups). Changes were followed at 2-day intervals. At a concn. of 10 ppm. of hematin the induction period was shortened by 15-21%, at the same concn. of hemin by 5-10%. At higher concns. hemin was more effective than hematin. An autoxidn. reaction was catalyzed by these compds.

IT **Oxidation catalysts**

(aut-, hematin and hemin as, for lipids)

IT **15489-47-1 15489-90-4**

RL: **CAT (Catalyst use); USES (Uses)**

(catalysts, for autoxidn. of lipid)

L1 ANSWER 342 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1968:8850 HCAPLUS

DOCUMENT NUMBER: 68:8850

TITLE: Synthesis of chelates of 2,7,12,17-tetramethyl-1,4,6,9,11,14,16,19-octaketocycloeicosane

AUTHOR(S): L'vova, S. D.; Evstigneeva, R. P.; Preobrazhenskii, N. A.

CORPORATE SOURCE: Mosk. Inst. Tonkoi Khim. Tekhnol. im. Lomonosova, Moscow, USSR

SOURCE: Zhurnal Organicheskoi Khimii (1967), 3(9), 1583-6
CODEN: ZORKAE; ISSN: 0514-7492

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Chelates of the title macrocycle (I) with CuII, CoII, ZnII, FeIII, and VIV were prep'd. and their catalytic activity in promoting oxidn. of Luminol with H2O2 was det'd. (Voronov and Kononenko, CA 64: 13047c). For example, addn. of sat'd. aq. soln. of Zn(OAc)2 to a soln. of 0.8 g. I in 7 ml. MeOH ppt'd. crude I.Zn2 chelate (II). Boiling II in MeOH, followed by filtration, washing with H2O and MeOH gave 29.9% II, m. 283.degree. (decompn.). From the MeOH filtrate, after pptn. with water and recrystn., 24.4% II isomer, m. 330.degree., was obtained. Similarly, other chelates were prep'd. (chelate, % yield, m.p.): I.4VO.4OAc.4H2O (III), 11.2, 360.degree.; I.2Co.2H2O.2MeOH (IV), 84.4, 364-6.degree. (decompn.); I.2Fe.2OAc.2H2O (V), 72.1, 316-8.degree. (decompn.). Ir spectra of the chelates are included. The following relative catalytic activities (A) of the chelates and (for comparison) other organometallic compds. are reported (compd., molar concn., A): hemin, 0.34 .times. 10-10, 11; cytochrome c, 0.37 .times. 10-5, 19; Cu acetylacetonate, 0.85 .times. 10-3, 3; I.Cu2, 0.17 .times. 10-4, 4; IV, 0.50 .times. 10-5, 14; V, 0.28 .times. 10-4, 5; II, -, not active; III, -, not active.

IT **Oxidation catalysts**

(transition metal complexes with 4,9,14,19-tetramethyl-1,3,6,8,11,13,16,18-cycloeicosaneoctone as, for Luminol, by hydrogen peroxide)

IT **142-71-2 13395-16-9 15489-47-1**

RL: **CAT (Catalyst use); USES (Uses)**

(catalysts, for oxidn. of Luminol by hydrogen peroxide)

L1 ANSWER 343 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1967:450460 HCAPLUS

DOCUMENT NUMBER: 67:50460

TITLE: Effects of a lipid peroxide on vitamin E

AUTHOR(S): O'Brien, Peter J.; Titmus, G.

CORPORATE SOURCE: Dep. Med. Biochem. Pharmacol., Birmingham Univ., Birmingham, UK

SOURCE: Biochemical Journal (1967), 103(2), 33P-34P

CODEN: BIJOAK; ISSN: 0264-6021

DOCUMENT TYPE: Journal

LANGUAGE: English

AB cf. preceding and following abstrs. The oxidn. of .alpha.-tocopherol (I) by linoleate hydroperoxide (II) in the presence of hematin was studied in a 70% ethanolic soln. at various pH values. At pH <3, 99% of I was oxidized to .alpha.-tocopherylquinone and 1% to a dimer. The oxidn. was probably bivalent, as 2 moles of H₂O₂ or 1 mole of II/mole I were needed. At a neutral pH, 25% polymer, 10% .alpha.-tocopherylquinone, and 65% product I, which was presumed to be 9-ethoxy-.alpha.-tocopherone, were formed. Fifteen moles of H₂O₂ or 10 moles of II/mole I were needed for oxidn. at a neutral pH. At pH >11, the reaction was more rapid, and less peroxide was needed; the products contained product I, product II, and less dimer than was formed at a neutral pH. At an alk. pH, product II absorbed strongly at 326 m.mu. and had the same gel filtration elution vol. as I. .alpha.-Tocopheryl acetate was not oxidized by II in the presence of hematin. The kinetics of the reaction indicated that the hematin-catalyzed decompn. of II to the oxidizing species is the rate limiting step. Ascorbate, urate, and cysteine, but not glutathione, NADH, or vitamin A, completely inhibited the oxidn. of I at pH 7.

IT **Oxidation catalysts**

(hematin as, for .alpha.-tocopherol)

IT **15489-90-4**RL: **CAT (Catalyst use); USES (Uses)**

(as catalysts, for .alpha.-tocopherol oxidn. by linoleate hydroperoxide)

L1 ANSWER 344 OF 344 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1967:450459 HCAPLUS

DOCUMENT NUMBER: 67:50459

TITLE: Effects of a lipid peroxide on vitamin A

AUTHOR(S): O'Brien, Peter J.

CORPORATE SOURCE: Dep. Med. Biochem. Pharmacol., Birmingham Univ., Birmingham, UK

SOURCE: Biochemical Journal (1967), 103(2), 32P-33P

CODEN: BIJOAK; ISSN: 0264-6021

DOCUMENT TYPE: Journal

LANGUAGE: English

AB cf. following abstrs. Vitamin A (I) was oxidized by linoleate hydroperoxide (II) in the presence of a heme compd. in a 50% ethanolic soln. The rate of oxidn. of I increased as the pH decreased, was 1st order with respect to II and the heme compd., and, as detd. by a double reciprocal plot, was proportional to the concn. of I. These kinetics indicate that the decompn. of II catalyzed by the heme compd. was rate-limiting. The catalysts, in order of effectiveness, were: hematin, methemoglobin, myoglobin, and cytochrome c. The other peroxides which oxidized (more slowly) were: H₂O₂, cumene hydroperoxide, tert-butyl hydroperoxide, and benzyl peroxide. The oxidn. rate markedly increased with the polarity of the solvent. Ascorbate, urate, cysteine, or .alpha.-tocopherol completely protected I from oxidn.

IT **Oxidation catalysts**

(heme compds. as, for vitamin A acetate)

IT **15489-90-4**RL: **CAT (Catalyst use); USES (Uses)**

(as catalysts, for vitamin A acetate oxidn. by linoleate hydroperoxide)

=> log y

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924.19

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